

PRACTICAL OBSERVATIONS
ON THE
DISEASES OF THE ARMY IN JAMAICA.

VOL. II.

PRACTICAL OBSERVATIONS

DISEASES OF THE ARMY

IN

AS THEY OCCURRED BETWEEN THE YEARS
 1791 AND 1801

BY WILLIAM LEMPHRIET
 M.D.
 OF THE ARMY

LONDON:

PRINTED BY J. JOHNSON, ST. PAULS CHURCH-YARD.

IN TWO VOLUMES.

VOL. I.

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PRACTICAL OBSERVATIONS

ON THE

DISEASES OF THE ARMY

IN

JAMAICA,

AS THEY OCCURRED BETWEEN THE YEARS
1792 AND 1797;

ON THE

SITUATION, CLIMATE, AND DISEASES OF THAT ISLAND;
AND ON THE MOST PROBABLE MEANS OF LESSENING
MORTALITY AMONG THE TROOPS, AND AMONG
EUROPEANS IN TROPICAL CLIMATES.

BY WILLIAM LEMPRIERE,
APOTHECARY TO HIS MAJESTY'S FORCES.

IN TWO VOLUMES.

VOL. II.

LONDON:

PRINTED FOR T. N. LONGMAN AND O. REES,
PATERNOSTER-ROW.

1799.

Transferred to Harvard Medical School

1861, Jan. 18.

Gray Fund



4. M. S. P. 1799. 13

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ON THE DISEASES OF THE ARMY IN JAMAICA

OF THE DISEASES OF THE ARMY IN JAMAICA

A MILITARY life exposes the soldier to a variety of diseases which affect people in the civil walks of life. The soldier is exposed to more fatigue and exertion, and the end of the country is less healthy than the interior. His situation, habits, employment, and the exertion which must frequently be made in the field, all contribute to his being exposed to diseases in which the mind is so often engaged; which the duty and the fatigue of the day.

PRACTICAL OBSERVATIONS

ON THE

DISEASES OF THE ARMY IN JAMAICA.

CHAP. V.

Of the diseases of the army in Jamaica.

A MILITARY life exempts the soldier from that variety of diseases which affect people in the civil walks of life, while it exposes him to more frequent and fatal attacks, of the endemic of the country where he happens to be stationed. His education, habits, employment, and the levity which more frequently marks his conduct, all exonerate him from those complaints, in which the mind is so often concerned; while his duty, and the share of

fatigue to which occasionally he is exposed, exclude him from other diseases produced by a sedentary life. The diseases of a soldier therefore, though few, in general are more formidable than those of the civilian; since by his intemperance, and exposure to climate, the predisposing and remote causes of the prevailing endemic act with much more force and certainty, in the former, than in the latter. In the West Indies, where even the inhabitants are exempt from many of the diseases of Europe, those of the military are limited to a very small number; fevers, dysentery, obstructed viscera, and ulcers, forming the principal causes of sickness, which is to be observed in the army, stationed in a tropical climate; each of which will be treated in the following chapters, in the order they are now mentioned.

CHAP.

CHAP. VI.

ON FEVERS.

General remarks on the fevers of Jamaica.

SINCE fevers gave rise to the greatest proportion of sickness, and deaths, that happened in Jamaica, they certainly demand a particular investigation. They are the prevailing disease of the inhabitants of tropical climates; but it was to the troops, their principal frequency, and force was directed; in whom was to be observed, every variety of symptom that could mark the most favorable, or fatal termination of the disease. Among soldiers were to be discriminated, the more striking effects of intemperance, and exposure to climate, as predisposing causes; and the particular train of symptoms in the disease, to which they afterwards gave rise. It was in this

description of people also, where the effects of an uniform course of irregularity, a long residence in the country, and repeated attacks of fever, were more exquisitely marked in the form of chronic diseases : It was therefore the army which opened the most extensive field for observations on fevers.

It is generally acknowledged, by physicians of eminence and candour, who have practised long in the West Indies, that all fevers endemic to tropical climates, exist only where marsh exhalations prevail ; and that these are produced by the action of heat on moisture ; which by being impregnated with certain impurities, derive various degrees of force, in proportion to the prevalence of such impurities, and the share of heat to which moisture may have been exposed ; and that it is particular constitutions, seasons, and situations, which determine their form and variety.

Thus the newly arrived European was more exposed to fever in the continued form, than others, who were assimilated to the climate ; while those again experienced
more

more frequent attacks of the remittent, than the natives, in whom fevers had always a tendency to intermit, or appear in the mildest form.

With respect to the seasons, during the dry hot months, the continued fever was most prevalent and fatal; the period subsequent to the autumnal seasons, was marked by the remittent; and during the dry cooler months of the spring, fevers were more disposed to put on the intermittent form. Intermittents were also more endemical to situations that were constantly damp, such as the vicinity of lagoons, than to others that were occasionally so, and subject afterwards to become dry by the action of the sun; such as small swamps, ponds of water, flat clayey land, and the banks of rivers, which more frequently gave rise to continued or remittent fevers.

That heat and simple moisture, contribute but little to the production of fever, is proved by its seldom occurring in many of the situations in Jamaica, where the fogs of rapid streams universally prevail; and

sometimes so thick, as to obscure the sun until ten o'clock in the morning. Such is to be daily observed in the walks, in St. Thomas in the Vale; where the river from its serpentine direction, and the many obstructions it meets with in its course, runs with considerable rapidity; and where, except in consequence of the rains, fevers are by no means frequent*. Stoney Hill and other mountainous situations where the hills are separated by a rapid stream, are subject to similar fogs, which give rise to as little, or less inconvenience, than those in the walks; and these fogs usually occasion no other complaints, than those which may be expected from a damp, cool air, acting on persons who have previously overheated themselves in the sun. Consequently colds, slight pulmonic and rheumatic affections are more peculiar to these situations than fevers.

* Dr. John Hunter has previously noticed this circumstance, and it is confirmed by the testimony of every person who has resided in the parish of St. Thomas in the Vale. See his observations on the diseases of Jamaica.

There

There can hardly be a doubt but the exhalations of earth, not within the description of swampy ground, give rise to fevers; since in those situations, where the ground is clayey or flat, fevers more or less prevail after the heavy rains.—Spanish Town, which at particular periods of the year is certainly very unhealthy, has no swamp near enough to give rise to disease; but it has its savanna, and flat pens, which require a period of some time after the rains, before they can be considered dry, which frequently occasion fevers even to put on the worst form. On this account, some of the mountains where they have flats on their summits, occasionally produce intermittent fevers; and it is probably from this circumstance, that houses situated on the slopes of hills or mountains, where the rain can run off rapidly, prove more healthy than even many of the higher situations that are flat.

It seems often difficult to determine, at which particular period this poison (marsh miasma) is received into the habit; since its effects are frequently not observed until

a long time after the person has been apparently exposed to its influence; while in others, by the ambiguous symptoms, which will sometimes occur for days, or even weeks, before the disease is fairly formed, or even discriminated, it would appear to be gradually getting into the system, or be waiting for some change in the constitution, to give it force or action; while we have many instances of persons when overheated, or intoxicated, or in fact under the influence of any of the predisposing causes, immediately after exposure to a current of the land wind, being immediately seized with all the symptoms of the remittent or intermittent fever. The constitution has no doubt, a great share in producing this phenomenon, but I am rather disposed to conjecture, that it also depends on the more or less force of the poison itself, which helps to occasion that variety of form, and often those singular symptoms that occur in fever.

Having made these few general remarks on the remote cause of fevers, I shall beg leave to add a few on those which predispose

pose the constitution to receive and give it action.

These it is well known, consist in such a deviation from health, as may be considered a permanent, or even momentary state of debility. When this debility is very considerable, there is certainly a greater chance of the habit being influenced by the remote cause; but we often see the disease arise after slight fatigue, or when the patient is exposed to a current of air, at a time when he is in a violent perspiration; or even after a trifling alteration in the mode of living, by which some small, but imperceptible change may be produced in the constitution; in fact, we often see a fever occur, when this change from a state of perfect health, to a slight deviation from it, is hardly to be discriminated.

From this circumstance it is natural to suppose, and it is confirmed by daily experience, that there is in some, a certain idiosyncrasy, or constitution favorable at all periods to the production of fever; and in others, who under the most unfavorable circum-

circumstances, universally resist its attacks. Among the circle of my Jamaica acquaintance, I could produce several instances where individuals have resided a great number of years in Spanish Town, and from their mode of living, and the nature of their employments, who have been exposed to the most powerfully remote, and predisposing causes, that have never experienced a symptom of fever: while others who apparently were under the most advantageous circumstances, with respect to their health, by living temperate, possessing originally good constitutions, and residing in the most healthy situations, who have hardly ever been exonerated from its attacks.

The means by which a degree of debility may be induced is universally known; but there are some causes of it in a tropical climate, which deserve particular attention.

The depressing passions of the mind, such as fear, grief, and anxiety; acts of intemperance, including intoxication, repletion, excess of venery, and keeping late hours;

hours; violent evacuations of all kinds, whether natural, or artificial; excessive fatigue and great exertions and exposure in the sun, usually have been enumerated by authors, among the debilitating, or predisposing causes of fever: all of these no doubt contribute to the production of this disease; but in a tropical climate, and more particularly among soldiers, there are perhaps none which act with so much force and certainty, as fear, intemperance, and exposure to the sun.

The effect of fear both in producing fever and giving it a bad form, was often very striking both among the soldiers and inhabitants, at the time the sickness was so prevalent in Jamaica. An opinion was very general that the disease was universally infectious, and of a nature not likely to derive much benefit from medicine. The number of deaths that occurred during this alarming period, even where the greatest attention, and the best medical skill was exerted, rendered these apprehensions very pardonable; but they certainly occasioned

sioned the sickness to be more general and fatal, than even those causes which existed in the vitiated state of the atmosphere.

The effect and prevalence of a dread of the climate, was very conspicuous among the troops in general; and it was frequently observed, that they universally entertained an idea that the hospital gave greater force to the infection and its consequences, than the barracks. On this account, men would often conceal their indisposition, until it was so conspicuous as to render it impossible to escape the observation of the non-commissioned officers. When carried into the hospital they entered it with a determined prepossession that they should never come out; and many of them died in a few hours after they were brought in. Others with the most trifling symptoms of fever, immediately gave themselves over as lost; no reasoning or medicine could rouse them from this state of despondency, and they died apparently more from the influence of fear, than from any real malignancy in the disease.

In

In Spanish Town, where the regiments had the advantage to be well disciplined, and dependence could be placed on their non-commissioned officers, these apprehensions were in a great measure lessened; by the officers and surgeon strongly impressing on the minds of the men, that their ideas of infection were chimerical; that the disease did not arise from that cause, and that their own fears would subject them more to disease and its consequences, than infection, or any thing in the nature of the climate. At the same time, the non-commissioned officers were ordered to report to the surgeon, all such men as had only the appearance of indisposition; and during the parades, the officers, and frequently the surgeon, kept a vigilant eye over the men, and frequently detected indisposition in the countenance of many, who would not report themselves sick. The effects of this regulation, proved as successful as it promised; it gave to the men the necessary confidence in themselves and their surgeon, by which very soon it considerably decreased the number of deaths.

But

But it was at Kingston, Fort Augusta, and Port Royal, where those regiments were quartered, that laboured under all the disadvantages of being newly raised, and newly arrived, where this predisposing cause seemed to act with the greatest force. The officers and men of those corps were so much under the impression of a dread of the climate, that the common duties about the sick which might have contributed to their recovery, in many instances were neglected. The officers often could not be persuaded, though positively ordered by the commanding officer, to visit the hospital, to see or enforce the duty of the servants of it; and the men when sick, if it was not for the vigilance of the surgeon, frequently would have been left to their fate. One of the commanding officers in particular told me, that he was obliged to go round the hospital himself every day, to see the attendant do justice to the sick; for he had so many of his officers ill, and others so strongly impressed with a dread of the sickness, that no reasoning, or more powerful arguments, could induce them

them to approach the hospital: these circumstances occasioned the mortality to be great in those corps beyond example; and it is probable that had they not been moved to other quarters, by which their minds were amused, and the air changed, that nearly the whole of them must have been sacrificed to the climate.

I therefore universally observed that those who were most cheerful, or seemed to have the least dread of the climate, were not so subject to attacks of the prevailing disease, or went through it with much less risk than others, who were under the greatest apprehension.

Intemperance as a predisposing cause of fever, has been the subject of many able pens, and perhaps it is in no part of the world so striking as in the West Indies.

The conviviality which prevails at most West India tables, the richness and variety of their dishes, the different kinds of liquors that are usually drank, with the custom of seldom retiring from the table to other amusements, and perhaps the climate which contributes to

give

give a greater desire for pleasure than business, are all powerful inducements to intemperance; and we certainly see much more frequent instances of it in the West Indies, than in Europe. Among the lower order, this custom is carried to a much greater excess, and in a far more dangerous way. The ease with which many of this description become affluent, the little taste or inclination they shew for a domestic life, which gives rise to connections that by no means promote temperance; a desire of imitating their superiors, and a great deficiency of religious principle, altogether render those people much more prone to intemperance, than the others; and the want of taste, and the little command they preserve over their passions, lead them to those kind of excesses, which always attach to the lowest order of people; and are far the most dangerous in their consequences.

It is not to be supposed that with such inducements, the officers should be exempted from the prevailing custom, and particularly

particularly where they often see it adopted with apparent impunity; or that the soldiers, always prone to irregularity, should resist the easy means, with which they may indulge such inclinations in the West Indies. The consequence during the late sickness and mortality in Jamaica were strikingly obvious.

In those regiments newly arrived, which were the most irregular, it was a melancholy reflection to contemplate, the numbers who were sacrificed to their own imprudence. Men were frequently seen in the streets one day, in the highest state of intoxication, exposed to a meridian sun, without a hat to shelter their heads, or sometimes with little more covering on their bodies, than their shirts; the next, they were carried to the hospital, with every symptom of the worst kind of fever; and often on the third, to their graves. Intoxication likewise gave rise to an exposure to the night air, and consequently to the remote cause of fever, which under such circumstances, often acted with the greatest force.

It is not however the simple effects of intoxication (which of themselves sufficiently predispose to fever) that is most to be apprehended; but it is from its leading men to every kind of excess, and imprudence, that can give rise or add to the force of fever, which makes this custom so much to be dreaded. A continued course of intemperance, while it constantly exposes the individual to attacks of fever, is gradually laying the foundation for other diseases, which the climate is always disposed to induce; and which often proves as difficult to remove, as the worst form of fever. These are a diseased state of the stomach; the various inflammations of the liver; general obstructions in the viscera; chronic dysentery; and their consequences, dropy. Such diseases, when they are allowed to run to a certain degree, frequently preclude the possibility of cure; and the patient lingers on for some time in a miserable state between hope and despair, until death relieves him from his sufferings.

The

The general cast of countenance to be observed, in the lower order of white people, residing in the plains and on the sea-coast in Jamaica, and the number of them who die from diseases induced by intemperance, are striking proofs of the truth of this observation; while among soldiers, chronic diseases from frequent attacks of fever, and acts of intemperance, united to a long residence in the climate, are much more formidable to the welfare and existence of an army, than the sword, or even acute diseases in their worst form. The latter, by their rapid course, it is true, destroy a certain number of men on the arrival of a regiment in the West Indies; but the former, more slow in their operation, sap the foundation of a whole regiment, by either destroying, or rendering in the course of a year or two, the greater part of it useless to the service. The number of soldiers sent yearly to Europe as invalids, is the best testimony I can produce of the truth of this observation.

Exposure to the sun has been considered another predisposing cause of fever.

The number of people who from their avocations, or from inclination, are seen exposed to the sun, leads Europeans lately arrived, to conceive there is less risk in this custom, than has been represented; and from a desire of not appearing afraid of the climate, they are very apt wantonly to expose themselves to its influence; the effects are such as might be expected; and I do not remember through the whole of my experience, a single case of the continued, or even remittent fever with a bad type, where there had not been a previous exposure and fatigue in the sun. The head in such instances was particularly affected; and where intoxication had been combined with this exposure, the disease constantly proved fatal. We however daily see the streets of Kingston and Spanish Town, crowded with people walking even in the meridian sun; and Jamaica produces numerous instances of the sports of the field being enjoyed at the same period of the day.

day. It is true that habit will always lessen dangers of this nature, and that the natives, or long residents, run less risk by the custom, than the newly-arrived European; at the same time, I am convinced, that frequent exposure to the sun, though it may not always be productive of immediate disease, is impairing the constitution of all; and gradually it reducing to that state, when its effects will be more conspicuous. It frequently induces premature old age, and at a very early period it injures the powers of the mind.

CHAP. VII.

SECT. I.

Of the tropical continued fever.*

THIS disease, which is more commonly but very improperly distinguished by the appellation of "Yellow fever," became so prevalent and proved so fatal in Jamaica, during the years 1793, 1794, and 1795, as to give rise to a very general opinion that

* Much doubt has been entertained, and with great reason, whether such fevers exist as finish their course and prove fatal without some symptoms of remission; however this may be, as the remissions in one disease are much more obscure than in others, the word "continued" may be understood relatively, and as used for sake of distinction; and in this sense it may be applied to the disease in question, with great propriety, to distinguish it from the tropical endemic remittent; and although the term be not strictly scientific, yet it certainly conveys a clearer idea of the disease, than any other which has hitherto been used.

it

it was highly infectious, and that it had been imported from the Windward Islands by contagion. Indeed the number of people who fell victims to this disease, with the rapid manner in which they were carried off, naturally impressed many with a belief that this calamity arose from the most virulent contagion, and that it was little less than the plague itself: but to those who understand the influence of contagion, it will appear that this disease did not prevail as if it were of such kind; for it chiefly affected the newly-arrived European, as yet unnerved by the climate, whose high health alone rendered him a subject for its ravages; while the delicate and weak persons, particularly liable to the influence of contagious diseases, were altogether exonerated from this fever.

In diseases that are general, it is often very difficult to determine whether they arise from contagion, or from a morbid state of the atmosphere; circumstances common to both are so very similar, that the mind is involved in doubt, as to the

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cause;

cause; the mortality which attended this disease bore so strong a resemblance to the consequences of contagious fevers in general, that the public opinion naturally inclined to the belief of its being highly infectious in its nature. It is of great importance to investigate this point, since the result must lead either to such necessary precautions as may stop its progress, or to remove apprehensions which have contributed their share to the production of the disease. I shall therefore first inquire how far tropical climates are favorable to the production and diffusion of contagion; and next, whether this fever ought to be considered a contagious disease.

Contagious fevers in their different varieties, owe their origin to the effluvia arising from animal matter in a high state of putrefaction; and it has been universally allowed, that in proportion to the concentration of the effluvia, its force will be increased, and the variety of the disease determined: it is also generally admitted, that the putrefaction of animal matter is
most

most readily induced by a confined, moist, and warm atmosphere.

Fevers of the typhus kind very unfrequently occur among the white residents, people of colour, or negroes of Jamaica; the latter of whom live in crowded and confined apartments, where their indolence allows filth to accumulate, which they shut up with themselves as close as possible, from their desire to exclude the air, thereby affording every opportunity for human effluvia to become favourable to the generation of contagion; therefore it must be allowed, that the very great heat of this climate is inimicable to its generation; and that if it were generated, the intense heat of the day must rarify it to such a degree as to render it impotent, and destroy its power of propagation. This opinion is supported by the unfrequency of typhus among the soldiers also, unless when newly arrived and labouring under the influence of the contagion of ship fever; which even in such case does not spread, but soon disappears altogether.

flour.

And

And if the tropical climate be in general unfavorable to the production of contagion, and to its diffusion or continuance, when imported among the soldiers from ships, the months of June, July, August, and September, which constitute the driest and most ventilated season of the year, (the sea breezes prevailing with great regularity, purity, and force,) must be more particularly unfavorable to this production or diffusion; besides the intense heat of these months causes all the windows and doors of every house to be thrown open, with every other means by which air may be admitted, which allows a complete and rapid circulation of dry, warm air; and it was during these months that the tropical continued fever prevailed most.

Notwithstanding the truth of these positions, it may be admitted, that contagious diseases can exist in a tropical climate; but their existence on shore must be of short duration; for if we compare the scheme of mortality, which attends the worst fevers in tropical climates, we shall find it very different

ferent to that of contagious fevers in Europe, which depopulate whole towns without distinction of persons; whereas the tropical continued endemic, confines itself chiefly to newly-arrived Europeans. This observation must have weight in the conclusions we may draw, on the causes and nature of the fevers which prove so fatal in tropical climates.

Having given my reasons why tropical climates are not favorable to the generation or diffusion of contagion, I shall now endeavour to prove that the disease which has been so fatal in Jamaica did not originate in general from that cause.

Though all fevers have in some respects similar symptoms, yet upon an accurate comparison of the tropical continued endemic with the European typhus, or with the plague itself, it will not be found that their leading symptoms by any means correspond; or that a combination of black vomit, dark stools and urine, with a universal yellowness, and that particular clay-like, gloomy, ghastly countenance are present

sent in any other disease than the tropical continued fever; hence it cannot be considered contagious from resemblance.

The observations of Drs. Hillary, Warren, Hume, Blane, and of Dr. Jackson especially, who has treated on every variety of the disease which lately occurred in Jamaica, abundantly prove it to have been no stranger in the country long before it was looked upon as a new and contagious disease; and from their testimony it is evident, that it is this disease, in a greater or less degree, to which Europeans have ever been subject at particular periods, on their first arrival in tropical climates.

The tropical continued fever has seldom been observed, but where the temperature of the air does not allow the mercury in the thermometer to range lower than from 75° to 50° on Farenheit's scale*; this is clearly proved by the observations of practitioners in Jamaica, who reside on the mountains

* Dr. Blane has noticed this circumstance in his remarks on the diseases of hot climates. Vide Blane's Treatise on the Diseases of Seamen.

where

where the thermometer frequently sinks below 50° and seldom ranges higher than 75° : in these situations this fever very rarely occurs, or indeed any other diseases, than mild intermittents, and slight inflammatory affections.

Negroes are seldom attacked by fever in this form, unless they had visited Europe, and had newly arrived*; yet they are equally subject with the white inhabitants to the endemic remittent of the country. White natives of the West Indies, with the same exception, are equally exempted from its attack; as also are Europeans who have resided some time in a tropical climate, and who have experienced one or two attacks of the common remittent. These circumstances deny it to possess the infectious influence of a contagious fever; and as a further proof, I may adduce, that in no instance under my observation, did any at-

* This remark, which previously has been made by Dr. Jackson, when treating on the fevers of Jamaica, has been fully confirmed by my own experience during the present war.

tendant upon the sick labouring under this disease, take this fever, except persons under particular circumstances of constitution, to be hereafter noticed; though many of them remained in the sick rooms, until after the patients' death. In no instance were the nurses of colour affected by it; and in the few instances where orderly men attending on persons ill of this disease were seized with fever, it never failed to put on the remittent form, which certainly in many cases owned a bad type, and sometimes proved mortal; but which prevailed a distinct yet cotemporary disease with the continued endemic; affecting not only Europeans of long residence, but even the natives themselves with uncommon malignity; any other debilitating causes, as well as the fatigue and want of rest arising from attending the sick, would have excited the same fever; which must prevail on occasion among the attendants of the sick in common with others.

Many of the officers who died of the continued endemic, for whom I had a

personal friendship, were attended by myself both day and night with close assiduity, which the inattention of their nurses more closely imposed; inducing me to assist in that capacity, until the moment of death: still I was not infected with contagion.

That this disease has been more frequent and fatal within the last five or six years, than at any former period, is a fact that cannot be denied; but that it has often appeared before between the tropics, and does generally continue with more or less prevalence in these climates, is put beyond contradiction, by the abundant testimony of the many authors who have seen it, and treated of it, at different periods: and its unusual prevalence of late must be referred to that particular constitution of the atmosphere, upon which the existence of endemics at one period rather than another depend: for it appears evident, that if the disease in question possessed those contagious qualities which have been attributed to it, it must have extended over the whole of such a place as Jamaica, where the interior

rior necessarily keeps up a constant communication with the sea-port towns: whereas it was confined to those situations only, where remittent fevers are most prevalent and fatal, and to those subjects, who had lately arrived from Europe, with robust and plethoric constitutions.

This disease must not be confounded with a cotemporary fever, that appeared among the shipping in the West Indies, which was produced by causes unconnected with the climate, and evidently of the typhus kind; though in some degree, it had acquired from the climate, features of the tropical fever; however its character sufficiently evinced, that it either must have been brought from Europe, or generated in crowded vessels; besides it was chiefly confined to the shipping, or to such places as had a close and constant communication therewith. In one of the convoys from England, which consisted of many ill-regulated vessels crowded with troops, a fever was generated from their long detention, which carried off many persons before they

they approached a tropical climate: on their arrival, this disease, by its contagious nature, was communicated to other ships, which caused very great mortality among the seamen and others who had been exposed to its influence; but the little progress which it made in the island, beyond those who had been lately from Europe, and in some way or other connected with the shipping, is a strong proof that a tropical climate is not favorable to the propagation of contagion:—the statement of burials in Kingston and Spanish Town evidently shew that this fever had not extended to the inhabitants resident at those places.

The regiments of Irish brigade suffered under a fever of the typhus kind, previous to their arrival in Jamaica; which either had been brought from Europe, or generated on board the vessels in which they were embarked. This fever continued in some degree after their arrival; but on their removal to Spanish Town, it altered its form, and partook more of the common endemic remittent; which shews that the

climate does not favour the existence of contagious diseases, as it destroys in them the power of propagating their kind. The circumstances attending the 67th and 130th regiments, might be adduced as farther elucidations of these positions.

The disease which proved so generally fatal to Europeans not affimilated to the climate, and which often appeared in situations remote from shipping, and in persons who had been unconnected with any vessel for several months, differed widely in many of its leading symptoms, as well as in other circumstances attending it, from that which has just been noticed. Indeed, there was not any part of the island but the mountains, and such other places as were free from marsh exhalations, that did not furnish the newly-arrived European, with the continued endemic fever.

Therefore it appears that there were two distinct fevers at Jamaica, which proved very fatal to newly-arrived Europeans—The one, extending its influence to those who had resided a year or more in the country,

country, without having experienced any sickness, or much relaxation from the climate; but acting with more force on persons of full habits, who lately had arrived from Europe, especially those between the age of sixteen and forty; on men more than women; and on those even more than on children, or on persons who had passed their fiftieth year, and to which Europeans have ever been subject on their first arrival in the West Indies. This disease arises from the action of very powerful marsh miasma on constitutions not assimilated to the climate; which, aided by the predisposing causes of the intense heat that prevails during the hot months most productive of this form of fever, by intemperance, and by exposure to the sun: these circumstances combined, produce the tropical continued fever.

From this disease frequently following an act of intemperance, or great exposure to the sun, these circumstances have been assigned as causes for its production; but it is evident that they only predispose the

body to be acted upon by the remote cause; since the crews of ships, and passengers from Europe, are frequently exposed to the influence of a powerful sun after passing the tropic, those from duty, these from inclination, and as temperance is not always observed in such situations, it might be expected that a fever similar to the endemic, would sometimes occur; but the crews of ships and passengers have been universally exempt from any fever but that of the typhus kind, until by landing in the West India islands they become exposed to marsh exhalations, the miasma of which, may fairly be assigned as the remote and essential cause of a fever, whose production depends on their presence and co-operation.

In the mountainous parts of Jamaica, and on the plains, out of the reach of swampy exhalations, though men be equally intemperate or exposed to the sun, yet the appearance of the tropical continued fever in such places is rarely to be observed; even at Stoney Hill, which is but nine
miles

miles from Kingston, and of a temperature differing from it not more than eight degrees, where from its situation, irregularities among the soldiers are with very great difficulty restrained; yet the troops stationed there always have enjoyed much health, and seldom have been attacked with any other diseases, than the common remittent and intermittent fever.

The tropical continued fever may therefore be considered a disease, produced by the action of marsh miasma in hot climates, on subjects predisposed to its influence by the peculiarity of their constitutions, derived from a residence in an European climate; or in other words, from a constitution which has not experienced such changes as are necessary to obviate certain effects from the miasmata when received into the body, and which from this change of constitution, would in such cases be productive of the remittent or intermittent fever only; yet under either circumstance, the predisposition is increased by intemperance of all kinds, and by fear or grief, or what-

soever else that can be productive of a permanent or transitory debility:—from what has been said it follows that this disease originates in a tropical climate on shore, and that it is not contagious.

The other, was the common typhus fever *, produced by causes existing in the ships, or derived by them from places where it already existed; having invariably shewn itself before the vessels arrived at a tropical port, where it then in some degree changed its form, and acquired some of the symptoms of the tropical endemic, gradually losing its contagious property; the force of which seemed to be diminished by the climate, as its influence did not extend, but in very few instances, beyond the original source of the disease; and in no instance did it extend to situations out of the direct and constant line of communication with the shipping; except in that of the Irish brigade, who probably carried the

* Denominated Ship, Jail, and Hospital Fever, by authors, according to the local circumstances attending its generation.

fomites in their clothing, to destroy which, or stop the progress of the disease in any way, but very inadequate means had been adopted.

Persons of every description, of every age and sex, lately from among the shipping and from Europe, were subject to this disease; which proved more rapidly mortal than the former. The symptoms by which the two diseases were more particularly to be discriminated, shall be hereafter explained, and we will now endeavour to account for the island of Jamaica having experienced so much sickness and mortality during the present war.

From the preceding observations on the climate of Jamaica, it must appear sufficiently evident, that the variety in the temperature and constitution of the air, arising from situation and other local circumstances, from the failure, excess, or alteration of the heavy rains called the Seasons, or from the prevalence of particular winds, (which though not so variable as in Europe, are nevertheless sufficiently so

to give a change to the form of diseases,) must have much influence on the nature of the endemic; and indeed, from the various ways in which it affects particular constitutions, it must undergo many revolutions; being sometimes partial, and appearing in a mild form, at other times becoming general, marked by the most aggravating circumstances. It is equally well ascertained by the experience of too many fatal examples, that war has its influence on the prevalence of disease in the West Indies: the description of people sent out for the defence of the colonies, do not possess constitutions adapted to the climate in which they are destined to serve; the vessels in which they are embarked (notwithstanding the vigilance and zeal of government, and the regulations observed in them) are not always the best calculated for the prevention of sickness; the time of embarkation, the delay in sailing, the period of their arrival in the West Indies, improper situation as to quarters after their arrival, with a discipline and interior regimental arrangement which do

do not correspond with the plan necessary to be observed for the preservation of health in a tropical climate, all conspire to produce subjects for disease in a time of war, beyond what are to be found in such climates during peace. While the arrival of the trade in large convoys at improper seasons of the year, after having experienced much delay and a tedious passage, introduces a number of Europeans about the same time into a climate unfavourable to their constitutions, which gives occasion to the prevalence of the endemic in its worst form among the seamen and passengers. That the unusual sickness at Jamaica arose from those circumstances, there can be little doubt; though some medical gentlemen have attributed its introduction to the arrival of some vessels that brought the seeds of the disease from the Windward Islands; which would imply, that the tropical continued fever arises from contagion only, and that the climate has no more share in it than to aggravate its more leading symptoms. I have already endeavoured

voured to clear up this doubt, and shall now take into consideration, the state of the weather and diseases, previous to the period in which this fever was first discriminated as differing from the common remittent.

I embarked in the *Duckenfield*, a West India ship, the latter end of September, 1792, with the second detachment of the 20th or Jamaica light dragoons, consisting of 150 men. We arrived in Jamaica early in the following December, (having had a passage of ten weeks, including our stay at *Madeira*,) without losing a man, or sending on shore any sick with acute disease: the men of whom this detachment was composed, were drafted from different regiments of dragoons, by no means the most regular, or such as seemed calculated for a tropical climate.

I attribute their arriving in so healthy a state, to the great attention paid by the commanding officer to the cleanliness of the ship, and of the men's persons; and to the free circulation of air, from the ship being fitted

fitted with gun-ports, together with such regulations as were observed.—When the weather permitted, both men and women were compelled to remain on deck the greater part of the day; at the same time, they were obliged to carry up their bedding to air.—Frequent sweeping, washing and fumigating between decks, were rigidly observed.—The men were divided into watches, and gave their assistance in working the ship, while at leisure hours, exercise, such as dancing and wrestling, was encouraged.—After passing Madeira, a puncheon with the head removed, served as a bathing machine; and in which a certain number of the men alternately washed themselves with sea-water; by which they were kept clean, and one of the causes productive of infection was removed. The arrival of this detachment in so healthy a state, clearly serves to prove that it is not intense heat which is the sole cause of disease in a tropical climate; for no people could be more exposed to the action of the sun, than they were between
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the time of passing the tropic and landing; yet no disease like the tropical endemic appeared among them, and the same may be more or less observed in the most unhealthy ships, previous to their arrival in the West Indies, since their sickness will in general be found to have originated from circumstances in the ship itself, and unconnected with the climate.

On our landing, we found that the troops and inhabitants had just experienced their usual share of sickness which follows the October rains, without any peculiarity in the disease to distinguish it from the common endemic: but the former detachment of the light dragoons, which arrived in the island eight months previous to our arrival, suffered at Up Park camp where they were first stationed, by a fever, which was very rapid in its course; and by some of the symptoms stated to me, I have reason to believe that it was of the continued form, such as afterwards became prevalent, but which at this time had not been discriminated from the endemic remittent: of this fever
many

many of the men and their commanding officer died; the detachment was then removed to Spanish Town, where we found them on our arrival: they had now also many sick, a circumstance which at this period always occurs to troops that have not resided long in the island, but the prevailing fever was evidently the endemic remittent.

The 16th and 20th regiments of foot also had arrived but a short time in the island, after a very quick passage from Halifax in Nova Scotia; they were both very sickly, and had suffered much mortality on their first arrival, to which the sudden transition of climate no doubt considerably predisposed, as well as other causes which have been noticed in a former part of this work, as contributing to the very great sickness which prevailed in these regiments.

The sick of the 62d regiment quartered in Spanish Town were just recovering from the effects of the preceding seasons, and the other parts of the army were much in
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the same state, and had not been more unhealthy than may be expected at particular seasons of the year.

The Norths set in, soon after our arrival, and induced the endemic to put on a more favorable type, both among the inhabitants and troops; except in the 20th light dragoons, which, from their being unseasoned troops, and from other circumstances that already have been noticed, the endemic continued during the whole of the following year to preserve a bad type: in January, the last detachment began to fall sick of the remittent fever in a form still worse than in the other, the disease frequently finishing its course in five or six days: there was not however in it, any of the symptoms which distinguished the continued endemic, although there evidently was an appearance of congestions in the abdominal viscera and brain, when it terminated fatally. Nothing remarkable attended the weather or diseases from January to May 1793, a period when the spring seasons are expected.

It

It has already been observed, that the rains in May are of much shorter duration in general than those of October: the reverse was the case this year, for they became of greater force and longer duration than had ever been before observed; the heat which preceded them in April was great, and violently oppressive, and this increased until the termination of the seasons, whose rains produced much mischief and distress to the inhabitants of every part of the island. In Spanish Town, a very strong wooden bridge that stood over the Rio Cobre was washed away; and the river rose so high, as to threaten the inundation of the town, which stood considerably above it. Floods were universal throughout the island, and gullies which are usually dry, became formidable rivers, sweeping away cattle and negroes in their torrent; while many white people as well as negroes perished in attempting to cross rivers usually fordable, by the very large and sudden falls of water which rolled upon them.

These

These rains were succeeded by an uncommon heat in the atmosphere, which prevailed during the months of June, July, and August; nay, indeed, until the occurrence of the autumnal seasons, which set in earlier than usual.

These circumstances will sufficiently account for the appearance of the continued fever, and its prevalence during the warmer months, about which time it was supposed to have been imported, a new disease, into Jamaica: as the ground must necessarily have been longer than usual under the influence of moisture from such heavy rains, the marsh exhalations which followed, must have been of greater duration, and from the unusual heat, more abundant; which filled the atmosphere with miasma, rendered more concentrated by its abundance. In this manner, the remote cause of fever acquired a degree of force beyond that which it could have attained at any other period of the year, or under any other circumstances than those which we have noticed. Under this state of the atmosphere,

mosphere, a greater number of Europeans than usual, brought by consequence of the war, arrived in the island, on whom the intense heat which prevailed at the time, acted as a cause, that predisposed them to its influence, which produced a fever in a continued form; rendered prevalent by reason of the number of Europeans lately arrived, who chiefly were subjects for its attack. This will account for the troops and other new-comers being attacked with the continued tropical endemic at this time; and as we observe that, in those constitutions which have been assimilated to the climate, fevers more usually put on the remitting and intermitting type, and that these forms of fever are not so prevalent during the hot months of the year, as they have been immediately after the autumnal, or previous to the spring season, we must not be surprised to find the residents remain healthy, while the continued endemic prevailed among the other inhabitants.

The first case of the continued endemic that came within my observation, was that

of an officer of the 62d regiment in Spanish Town; who arrived in Jamaica in June, was attacked, and died with all the discriminating symptoms of this fever in August: many similar cases among the officers and men of the 20th light dragoons succeeded this, until the month of January, when the continued fever disappeared, and the remittent resumed its place.

After the October rains in 1793, the residents experienced their usual share of the common endemic; but the troops were uncommonly sickly, and the remittent in general assumed a type which proved rapidly fatal, especially among the 20th light dragoons and 62d regiment, the latter of which had been two years in the island, and had hitherto suffered less sickness than other regiments in proportion to their residence; which may account for their becoming at once generally attacked by fever. The symptoms which attended the remittent among these troops were bad, in a very high degree; and sometimes were abetted by those of typhus, from the number of sick

sick exceeding the accommodation for them, insomuch as to crowd the hospitals beyond discretion: many of the men died on the second day after they were brought in, apparently from the debility which marked the disease in such cases; for here, the fever seldom ran high, and local affection was very obscure, if at all to be observed; the stomach was retentive, and afforded every chance to the exertion of medicine, while the patient seemed insensible of his danger, not being willing to admit that there was any truth in his indisposition. Bark, and wine or brandy, were given in large proportions, and retained; stimulants were variously applied, but seemed to have no effect on the disease; and not unfrequently the patient died at a time when the pulse, and other symptoms, did not indicate danger.

The 1st or royal regiment at Up Park, and the 20th foot at Kingston and Port Royal, had their share of the autumnal remittent; but in a less degree than the regiments just mentioned. The 16th was more distri-

buted, and better accommodated in every particular, than the other regiments, and was by consequence more healthy.

During January, February, and March 1794, the residents were healthy, and the remittent among the 62d put on a milder type, becoming less general and mortal; but it still continued with equal force among the 20th dragoons, and prevailed with much violence among the royals also; it carried off many of the men from the dragoons, but was still more fatal to their women and children; acting violently under the form of dysentery, but still more so when it confined itself to the form of fever.

The weather during these months was as usual dry and temperate, and the continued fever but seldom occurred.

April and May were not distinguished by any prevailing disease: the seasons set in as usual in May, but they were not by any means so severe, as even in ordinary years; but the heat during these months was unusually intense and oppressive; and the air did not receive those salutary concussions
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and changes, which are supposed to be derived from the prevalence of thunder and lightning, which usually accompany the spring seasons.

The 20th light dragoons lost fewer men this quarter, than at any equal time since their arrival; while the 62d, and more particularly the 10th, at Kingston, suffered very considerably by the remittent fever.

In June, July, and August, the continued fever prevailed again among the seamen, and other new-comers at Kingston and Port Royal, with more alarming symptoms than it had hitherto assumed; few Europeans who had arrived but lately, escaped an attack of this disease, and the mortality became dreadful. The ships of war, as well as all other ships at Port Royal and Kingston, became universally sickly; and the disease which prevailed among them was so rapid, and the deaths so numerous, that it conveyed more the idea of a plague than any other disease. About the same time, the continued endemic was observable in nearly all the towns upon the

sea-coast throughout the island, and upon the adjacent plains where new-comers resorted: nay, indeed, at this time, no part of the island seemed exempted from its influence, but the higher mountains.

The endemic continued in both forms until the autumnal rains set in, when it abated, and was rarely to be seen during the cooler months; however, towards the latter end of the year the remittent and intermittent put on a form and prevalency that proved very generally fatal to the inhabitants of Spanish Town and Kingston, carrying off patients with unusual rapidity. Indeed, at this period, sickness became more general throughout the island, than had been experienced for a series of years; for now, even the most healthy situations on the mountains were not totally exempt from some share of the prevailing disease: negroes and people of colour, and even children of all complexions, were in general very sickly, from some modification or other of the endemic, of which many died: and it was not until the month of
March,

March, that the inhabitants were restored to their accustomed health.

The hot months of 1795 and of 1796 produced a return of the continued fever among the new-comers; and it is probable that these months in each succeeding year will produce the disease, in a ratio proportionate to the number of subjects proper for its influence, and to the other circumstances attending the succession of the seasons, and the constitution of the air in general.

It appears from what has been said, that previous to the general appearance of the continued fever in Jamaica, a morbid state of the atmosphere had been induced, by the profusion of rain which fell in the May seasons of 1793, followed by an intense and oppressive heat; and that a change of weather during the subsequent cooler months, checked the progress of this fatal disease, which again returned after the following spring, with new vigour; and although in the spring season of 1794; there did not appear any thing extraordinary, such as might

be expected to influence the diseases of the following season, yet from the type which the endemic remittent put on among the residents, and from its general prevalency, there did not remain a doubt of the continuance of that morbid state of the atmosphere, which had given rise to the continued form of the endemic among newly arrived Europeans.

It also has appeared that the unusual mortality which visited the island of Jamaica of late years, is to be attributed, in a very great degree, to the many strangers who arrived in the island together, and at improper periods of the year; to the long passages and delays of convoys bringing troops from unhealthy situations in Europe; and more particularly to the diseases generated among the troops and seamen, on their passage to Jamaica, arising from the defect of proper arrangements on their passage, and continuing with much mortality for a short space of time after their arrival.

It

It is the observation of every one acquainted with tropical countries, that there is something in the constitutions of Europeans, which on their first arrival exposes them to an attack of the endemic fever of the country: and from the foregoing positions it will appear that this natural influence of tropical countries over the European constitution in producing fever, had been increased during the late years by some alterations in the seasons, and the constitution of the air; from causes not coming within the limits of our comprehension, in such way as to give the fever it produced in Europeans lately arrived, a continued form and a general bad type; which, together with the great number of strangers introduced into the country at an improper period, under other unfavourable circumstances by the war, may be considered the principal cause of that great mortality which marked this alarming period.

SECT.

SECT. II.

On the symptoms of the tropical continued fever, with the relation they bear to other varieties of the disease, and more particularly to the remittent endemic, from which the continued fever is here discriminated.

IN treating of the symptoms of the tropical continued fever, I shall follow nature in the order they arise, and describe them successively as they generally appeared in the subjects they affected. It must not be expected that all the symptoms and circumstances noticed and enumerated in this general description, will be found in any one particular case; any more than in one particular sun-set will be found all the variety of shades which accompany his setting; therefore I have dwelt with precision on the general appearance of the disease, and have subjoined but one case, which
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may be sufficient to elucidate what has been said in general.

The first attack of the continued fever is most frequently sudden and in the morning, and when the person considers himself in a high state of health, being usually robust and plethoric, and but lately arrived from Europe; sometimes a slight rigor precedes the attack, but more frequently it is absent; and the febrile symptoms usher in the disease with more violence than they put on at any future period: the head becomes affected with a most acute intense pain, which extends over the forehead, and through the optic nerves, conveying the idea of the upper part of the head being tightly girded with a cord; which, from the severity of pain, sometimes obliges the patient to scream aloud; a pain nearly as acute, occupies the lumbar region, and extends downwards to the thighs, accompanied by great anxiety and restlessness and with a peculiar appearance in the countenance not admitting of description; the frequent action of the eyelids upon exposing

fixing the eyes to a common day light, demonstrates an aversion to light, equal to that which prevails in violent ophthalmia, but without pain or inflammation: the pulse is marked by an increased action, in which might be observed a small degree of irregularity, each alternate stroke conveying the sensation of fullness and collapse; an obstinate costiveness generally attends these symptoms.

Profuse but partial sweats sometimes occur about twelve hours after the first attack, and a slight abatement of some symptoms may be observed; yet they seldom afford much relief, or amount in the least degree to a remission, the affection of the head generally continuing nearly with equal violence; at this time either a total solution of the disease takes place, or the febrile symptoms go off and give place to others of a more serious kind, or continue with little variation for twenty-four, or thirty-six hours longer, when in general they totally disappear, and are followed by others of a more alarming nature.

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These symptoms, which usually follow the febrile state of the disease, may be said to constitute its second stage, and are of such kind that nothing but a previous knowledge of this fever, so as to enable the practitioner to discriminate the disease before this period, could persuade him to believe his patient yet in danger.

In thirty-six, but more frequently in forty-eight hours after the first attack, the febrile symptoms having totally disappeared, all the pains usually go off also, the skin becomes cool though not open, the pulse assumes a character not more frequent than natural, but still retaining a something, which to an intelligent observer, from experience, denotes danger; the thirst has abated, the tongue becomes moist, and the patient imagines himself so much better as to have lost all former apprehensions, and now considers himself in a state of convalescence.

In this state, bark has been administered in substance by those unacquainted with the disease, and in some instances several doses have been retained, though more
fre-

frequently but small doses of the decoction can remain on the stomach.

The patient will now sometimes call for nourishment, and take small portions of chicken broth, or sago, or other light articles, without vomiting. In this deceitful interval of disease, symptoms arise which to those familiar with this fever denote the greatest danger.

The pulse, though not more frequent and sometimes less so than in a natural state, yet betrays a peculiar vibrating action, with alternate fullness and collapse, having also some irregularity in the strokes, which however does not amount to an intermission: the skin, though cool, yet possesses a *husky dryness* on it, which conveys a disagreeable sensation when touched; and the countenance bears an unmeaning kind of smile, with a frequent sarcastic grin: the eyes appear suffused with a mixed red and yellow, and look despondent; and a fullness becomes observable about the face, parotid glands, and neck; and upon careful examination, a slight yellow suffusion, blended

blended with a red blush, will now be found to have commenced immediately under the ears, as yet covering but a small portion of the face and neck, while the whole surface of the body exhibits an appearance as if recovering from Mosquito bites, which however is soon succeeded by a general yellow suffusion. During this fallacious stage of the disease, though there be not any marked injury of the intellectual faculty, yet there is a hurry or anxiety (without apparent uneasiness) in every thing the patient says or does; he seems particularly happy in conversing with his friends, but his answers in conversation are given as if in haste, and his medicine and his nourishment are taken in the same hurried kind of way.

In the course of twelve or fourteen hours from the cessation of the febrile symptoms, a slight vomiting comes on, but sometimes so small in quantity as not to be considered equal to what had been received into the stomach; but which may be distinguished from a return of the aliment by its con-

sisting of a clear, watery, but ropy fluid: at this time the patient becomes restless, sighs frequently with laborious respiration, and complains of a gnawing uneasiness at the stomach, similar to cardialgia. Notwithstanding this, he continues to consider himself better; but every succeeding hour increases these symptoms, and the vomiting becomes large and frequent; that which is now thrown up is more ropy than hitherto, and when suffered to subside, leaves a brown dirty matter on the bottom of the vessel in which it had been received; the uneasiness, or rather pain of the stomach increases, and is relieved only by a severe fit of vomiting; the restlessness amounts to a degree of unmanageableness that renders it difficult to keep the patient in bed, though unattended by any other appearance of delirium: an erect posture now never fails to produce vomiting and syncope, notwithstanding which, the muscular strength seems unimpaired; the pulse becomes slower, more full, and more irregular; the skin continues cool, but also remains *dry* and

and *busky*; the thirst at this period has become intense, although the tongue continues moist, but it has now assumed a livid hue; the quantity thrown up in vomiting is increased to such a degree, as to exceed what has been received into the stomach, in so much as to astonish the bystanders, and every hour it becomes more dark, and deposits a larger quantity of the brown sediment; at this stage of the disease, the countenance betrays the greatest degree of despondency and horror, frequently assuming that unmeaning smile before noticed; the stools become frequent and correspond in appearance with that which is thrown up by vomiting, and the urine exhibits a dark coffee-coloured tinge which stains linen with the same hue: in this manner the disease continues advancing, until the true black vomit supervenes, (which evidently is mixed with streaks of blood,) until the patient's stools are black and bloody like his vomit, and until his urine darkens in proportion: now sometimes hemorrhages are seen from the nose and

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mouth, but invariably the countenance puts on unusual horror and despondency, and the face becomes convulsed; soon afterwards convulsion affects the whole frame, and the patient makes astonishing muscular exertions to rise from bed, and to extricate himself from the hands of his attendants, who with difficulty confine him to his situation: at the end of one of these convulsions he is carried off by death.

This disease sometimes proves fatal on the third day, more frequently on the fifth, or seventh, and but seldom is protracted until the ninth.

After this general description of the continued endemic fever, it will not be out of place to notice such circumstances as discriminate it throughout, from the common endemic remittent.

An attack of the remittent is generally preceded by indisposition, either from nausea and languor, or slight head-ache and chillness, or a rigor; and often a regular shivering ushers in the disease; whereas the continued endemic commences from a
state

state of apparent health, usually unattended by rigor or shivering.

In the remittent, the febrile symptoms are the most mild on the first attack, and after a few hours remit considerably; the second paroxysm increases their force and continuance, and even when the disease terminates in the most favorable way, it seldom goes off without a third exacerbation of fever; the contrary happens in the continued endemic, it commences with its greatest febrile force, and when it goes off, it never returns to form a second paroxysm.

In the continued endemic, the strange and severe affection of the head and lumbar region, the general appearance of the countenance, and singular aversion to light, together with the great anxiety about the præcordia and restlessness from the first, are sufficient in themselves, to discriminate this disease at a very early stage from the remittent; in addition to these, the peculiarity of the pulse throughout, the disposition to syncope and vomit on assuming an erect

posture in the latter stage of the disease, constitute a diagnosis sufficiently clear. However it may not be amiss to consider the matter a little further.

In the continued endemic, I never knew an instance of a patient falling into the same train or kind of symptoms after he acquired the convalescent state; but when from inattention or any other cause a relapse threatened, it never failed to put on the form of a common intermittent, and yield to the administration of bark: in the remittent endemic, relapses are more frequent, and they usually bring the remittent form again.

We observe but few instances of patients recovering from the continued fever, when the febrile symptoms have prevailed forty-eight hours from the commencement, or after the yellow suffusion had appeared in any considerable degree on the neck and parotid glands; and the brown but more particularly the black vomiting, when accompanying the symptoms already described in the account of this disease, may
always

always be considered as fatal: whereas recovery from the remittent frequently happens after a much longer duration of fever, and after a vomiting of a dark, almost black fluid, with a universal yellowness which sometimes shew themselves in this disease, and though generally considered dangerous symptoms, do not always prove fatal when attendant on the remittent. When the remittent proves fatal, although it sometimes has carried off the patient at the conclusion of the second or third paroxysm, yet it more frequently protracts itself to the eighth or ninth day, and in many instances to the fifteenth; and when it preserves its proper form throughout, the patient sinks into death apparently from debility: the duration of the continued endemic is less, and the phenomena which attend death are widely different: but when the remittent runs into the continued form and proves fatal; in some constitutions a comatose state is induced, in others a delirium, and subfultus tendinum, and singultus with other spasmodic affec-

tions constituting general convulsion, attend the death of the patient. We shall now proceed to consider this variety of the disease as grafted upon the remittent.

In this, the first attack is marked by the usual symptoms which usher in the remittent, except that the affection of the head is more severe, and the eyes wear a suspicious appearance: remissions and exacerbations proceed alternately as in the common remittent, and bark in large doses generally is retained during the remissions, from which the unexperienced are wont to draw favorable conclusions: but about the third or fourth day, and sometimes later, such symptoms occur as denote the greatest danger; the eye becomes muddy and suffused, the countenance despondent, and the neck and afterwards the whole body shews itself dyed with a yellow suffusion; great irritability of stomach, and oppression about the præcordia, delirium, or more frequently coma, and many other symptoms of the genuine continued fever supervene; and sometimes the true black vomit

vomit marks this stage of the disease, and the patient is carried off at the end of a convulsion on the fifth, more frequently on the seventh, but sometimes at so late a period as the ninth day: these symptoms however, are in general treated more successfully in this variety of the disease than in genuine cases of continued fever, and patients sometimes recover from the customary mode of treating the remittent; whereas in the true continued fever, the stomach is usually so irritable, as not to retain such remedies as are employed in cases of the remittent, were they proper for the removal of the disease.

Having treated of the symptoms of the continued endemic; and having pointed out such circumstances as mark it when a distinct disease from the remittent; and such also, as are to be found in combination with it; I shall, for sake of elucidation, subjoin one case of genuine continued fever, which, with many others, was noted at the bed-side.

CASE.

Captain M' L. aged thirty, of an athletic form, but not gross, had arrived in Jamaica about a month, when having been previously much intoxicated, and having exposed himself during the whole night to its air, at between the hours of six and seven in the morning of the 5th of June 1795, was seized with violent shooting pains in the lumbar region, extending down to the hips and thighs, and with a darting, pungent pain across the frontal part of the head, passing through the temples and optic nerves, conveying to him the idea of his head being tightly girded with a cord, and so severe as to oblige him frequently to scream out; a pungent, intense heat took place on the skin, without any previous cold fit or rigor, he complained of great anxiety about the præcordia and laborious respiration, he vomited bile incessantly, and his pulse was full and frequent, and not of uniform action: a great
deter-

determination of blood to the head, or rather a slow return of the natural supply, was strongly marked by the flushed state of his countenance, and by the turgescence of the vessels of the eyes, which was accompanied by a great aversion to light, the impression of which produced the same kind of action in the palpebræ, as in cases of ophthalmia. In a short time after the attack, a profuse perspiration broke out on different parts of the body, but did not in the least degree, abate the heat of the skin or relieve the other symptoms; on the contrary they were much increased. In this situation ten ounces of blood were taken from a large orifice in the arm, which induced syncope and vomiting, symptoms which always afterwards recurred when in an erect position: very little relief accrued from the blood letting; and the blood which was drawn bore no marks of inflammation, but on the contrary, the crassamentum was of a loose texture. Pills composed of jalap and calomel were now prescribed, and after being retained about
half

half an hour, were thrown up in the same form they had been swallowed; recourse was then had to calomel alone in five grain doses every two hours, some of which were thrown up and others retained.

In the evening, six very loose and copious stools were procured, without any alleviation of symptoms; on the contrary the anxiety was much increased. He being well evacuated, the calomel was suspended; and saline draughts in a state of effervescence, and pediluvium in a nitre bath were substituted in its stead every hour during the night.

Notwithstanding the patient had two more very copious stools in the night, and the stomach seemed more composed in the morning of the 6th, yet the anxiety, attended by great marks of apprehension was considerably increased: the head and lumbar region appeared relieved by the pains returning at intervals only, the tongue though with a white fur on its surface, continued moist, and the skin which was

never

never without partial sweats, conveyed to the touch a sensation peculiarly hot and disagreeable, not easily to be described; the thirst intense, the pulse frequent, full, and irregular; the vessels of the eyes marked by a mixed yellow and red suffusion: the restlessness amounted to a degree that rendered it difficult to keep him in bed; and his greatest desire was to move constantly from his bed to a sofa, and thence back again.

About twelve at noon, the pain of the head and lumbar region still returning at intervals, a blistering plaster was applied between the shoulders, and the pediluvium, and effervescent draughts were continued as before.

In the evening our patient expressed himself relieved of the violence of the pains; but the particular suffusion in the eyes was evidently increased, and the breathing became more laborious, accompanied by frequent sighing, the state of the skin and pulse was unaltered, and a particular indifference about what was said to him, seemed

seemed marked by the unfrequency of his answers, but those which were given by him were rational: at this time he vomited a small quantity of phlegm interspersed with a few streaks of coffee-coloured matter: not having had a stool during the day, a purgative enema was administered, and thirty grains of calomel with one of opium, were made into six pills, one of which was given every two hours, and nitrous æther was added to his common drink, the pediluvium was continued, but the effervescent draughts were omitted.

Five of the pills taken in the night were retained; but the sixth which he took on the next morning, (which was the morning of the 7th,) he returned; he was very restless during the night, but fell into a sleep about five in the morning, which continued until eight o'clock; after he awoke he found that the pain in the head and lumbar region had much abated, but his skin still continued hot; his pulse frequent, and irregular; thirst very great, though the tongue continued moist; the
1 respir-

respiration much hurried and laborious, the sighing greatly increased, the singular appearance of the eyes, and the expression of despondency in the countenance much increased also; the neck slightly tinged with a mixed purple and yellow or dirty-coloured suffusion, with a fullness about the parotid glands and throat, and a general appearance prevailed over the whole surface, as if it was under the effects of mosquito bites; an increased indifference to objects and persons, with a disposition to coma supervened; the vomiting increased and brought up a ropy fluid in very considerable quantities, intermingled with flakes of a darker-coloured mucus.

From the disposition to coma, and the bowels not being open, the calomel was given in the same proportion as before, but without the opium.

At eleven at noon, two small loose black stools were produced, and the vomiting increased and became of a darker colour: at two P. M. another motion took place and the skin seemed more cool and open, the
pulse

pulse became less frequent, and full, but still continued irregular.

He had now taken and retained thirty-five grains of calomel without affecting the mouth in the smallest degree, we therefore continued it, as before; giving him a glass of the decoction of peruvian bark and snake-root, with the addition of some mindererus spirit in the intervening hour.

At six P. M. the pains affecting the head and lumbar region were entirely gone, and the other symptoms continued unaltered; he had now taken forty-five grains of calomel without any effect on the mouth. June 8th, seven A. M. had a bad restless night, the vomiting much increased, and was now always succeeded by a severe hiccough; the pulse not quicker than natural, but on pressing the artery diligently, a peculiar, vibrating sensation was impressed on the finger: he complained of a gnawing uneasiness at the stomach, such as may be expressed by cardialgia, with a sense of fullness therein, which he observed was always relieved by vomiting, but which
recurred

recurred when a fresh collection of fluid accumulated; the quantity thrown up on these occasions was incredible, it so far exceeded that which had been taken into the stomach; it consisted of a viscid fluid intermixed with an appearance, like coffee grounds; the stools exhibited the same appearance, and the urine was of a dark coffee-colour also, which tinged the linen.

Blistering plasters were now applied to the region of the stomach, and to the thighs; and to relieve the hiccough, two grains of opium was given every hour, and washed down with fifty drops of vitriolic æther, in a glass of peppermint water.

The suffusion of the eyes, face, and neck, was now much increased, and extended over the whole body: the countenance betraying an inexpressible degree of horror and despondency.

At twelve at noon, the singultus had slightly abated from the force of medicine; but the disease was now marked by the true black vomit, intermixed with red blood; his strength seemed much impaired, and he lay

lay constantly on his back in a state of delirium—the pulse now beat slow, and feebly.

About one P. M. he lay speechless, but much convulsed in the eyes and lower extremities; his respiration was interrupted, laborious, and catching; and at six the same evening, after a rapid increase of spasm, a convulsion carried him off.

THE disease I have described, and of which I have just given a case, may be considered the true, endemical, continued fever of the West Indies; and is the same disease to which Europeans on their first arrival in that country have ever been liable, in a greater or less degree; and to which they ever must be liable, while things continue to be what they are.

In the first section, this disease has been proved not to be infectious, nor arising from contagion; but from marsh miasma, acting on constitutions not assimilated to the

the climate; but there is a variety of this disease, concerning which some doubts may be entertained whether it be not of an infectious tendency; and it is that which has proved so rapidly fatal to many of the soldiery, but more particularly to the sailors and all sea-faring people.

This disease, like the true tropical endemic fever, seldom attacks any but persons lately arrived from Europe; yet it is not so confined to this description of people as the true endemic, for the weakly constitution is not exempt from its influence; however in general the robust and plethoric are the greatest sufferers, and it seems to possess contagious properties*; but it will be found that in as much as it does, inasmuch it differs from the true endemic, and that these properties are adventitious; and that if they were not, the diseases would prove one and the same; but as they now stand, they differ widely and ought not to be confounded.

* The existence of contagion seemed put beyond a doubt in the 130th, and in the Irish brigade.

The circumstances in which it differs from the true continued endemic, and which would seem to make it out to be a distinct disease, seem to arise from the peculiar situation of soldiers and sailors when taken sick; these always in crowded, or unventilated ships*, or removed to hospitals already crowded, those always placed in apartments occupied by other patients laboring under fever; this circumstance considered, together with the peculiarity of their diet, their manners, and their duty, will be sufficient to account for such symptoms as distinguish this variety of the disease; which appears to be a combination of tropical endemic, and typhus fever, or rather a disease arising from the united action of marsh miasma and human effluvia on constitutions predisposed to receive their influence.

The symptoms which attended the first stage of this disease, were in general the

* In crowded, or unventilated ships—the former alluding to ships of war that kept their sick on board, the latter to the close unventilated storages of merchantmen—
same,

same, but varied as to order, according to circumstances; those of the typhus kind supervening the first attack, when the disease had originated in the true continued endemic; but when the symptoms of the two diseases became co-ordinate, from their causes being co-existent, they usually took the following order and course.

The commencement of this disease wears a very deceitful appearance, for unless a practitioner had been in the habit of observing the countenance of patients in this fever, he would consider it to be a mild attack of the typhus, or of a common remittent.

Symptoms of debility without much fever are observable from the first, with nausea, or sometimes with slight vomiting, the heat is not intense, the pulse has an irregular creeping motion, and none of the symptoms which seemed to denote an inflammatory affection in the true continued endemic, present themselves in this case; but the acute pain in the head and lumbar region, the great anxiety and oppression

about the præcordia, and that marked despondency of countenance not easily to be described, are all here; as also from the first, an aversion in the eyes to the impression of light, and a red suffusion of the tunica adnata as in ophthalmia.

After the course of forty-eight hours, all symptoms of fever apparently abate; and the patient when asked how he finds himself, will answer, "much better;" and indeed an inexperienced practitioner from superficial observation would be apt to believe it, until he is undeceived by the fatal symptoms which follow on the third day. A slight vomiting of a dark-colored mucus, considerable hæmorrhages from the nose, and sometimes from the mouth, the canthi of the eyes, and other parts of the body; a great anxiety and restlessness, with frequent sighing, a sense of violent heat in the stomach, a black tongue with apthæ about the lips and mouth, which easily bleed: these, together with a ghastly countenance that attends them, denote the greatest danger, and are followed by a rapid aggravation

vation of each, particularly of the vomiting, which now brings up a coffee-colored or black fluid intermixed with blood: frequent black and sometimes bloody stools supervene, with a universal yellowness of the skin; and the patient goes off without the least sense of his danger at the end of the third, and sometimes on the fifth day.

In this variety of fever, the yellow suffusion appears more frequently than in the true continued endemic, shews itself earlier in the eyes, and on the neck, and spreads itself over the surface in a much shorter space of time, and after the second day the countenance becomes more ghastly; but the more leading symptoms, such as the singular affection of the head and lumbar region, the anxiety about the præcordia, the mixed yellow suffusion of the eyes and neck, and the nature and degree of the vomiting differ but little in either; however, the diseases may readily be discriminated by the insidiousness of the first attack in general, by the debility and dejection of spirits, and by the smallness

and irregularity of the pulse, which are always present in the first stage of this variety of the endemic; by the total defect of mental exertion throughout the whole progress of disease; also by the profuse hæmorrhages, the black tongue and apthæ on the mouth and lips, which mark its latter stage; and lastly, by the little resistance or struggle of the patient when sinking into death. It was this variety of the disease, which proved so general and so fatal to the 130th, and the two regiments of Irish brigade, and also to many of the seamen at Port Royal. I had no opportunity of seeing the fever that occasioned so much mortality among our troops at the Mole; but I am informed from the best authority, that it exactly corresponded with what has just been described; and as a large part of the army in St. Domingo, arrived under similar circumstances, and were embarked nearly about the same period, and from the same place in Europe, as the regiments of Irish brigade, where the whole already had suffered considerable mortality

mortality from a contagious fever; these concurring circumstances are too strong to admit of a doubt in my own mind, of the disease in question being of a contagious nature, and of its differing in some very essential points from the fever, which proved so fatal to newly-arrived Europeans in Jamaica, under different circumstances. However, it appears that some authors of great respectability, have denied the existence of contagion in a tropical climate, and particularly the appearance of a disease from that cause, in St. Domingo during the present war. The character of these gentlemen is too well established, to authorise a moment's suspicion to be entertained, that these assertions have been made contrary to their real opinions, or to flatter and strengthen some favorite system: we therefore must conclude that such a disease has not come within their observation, and that their experience has been confined to cases of the tropical fever only.

Recoveries from the genuine tropical continued fever, have been fewer than from

that variety of it which partook of the remittent endemic; but this variety of the disease which partook of typhus, proved proportionately more fatal than either, or than both.

Though the fatal days of the true continued endemic, were observed to occur on the third, fifth, and seventh, or sometimes on the ninth day; yet when the disease terminated favorably, there did not seem any marked crisis; or there were not any critical days to be observed; the symptoms gradually abating sometimes in twelve, at other times in twenty-four, or in thirty-six hours, but more frequently about the commencement of the third day, and if no favorable change took place at, or before this period, the patient might be considered in the greatest danger. This circumstance, beyond all others, serves to distinguish the continued endemic from the remittent.

The symptoms which portend a favorable termination of this disease and its variety, such as I have last noticed, usually appear within forty-eight hours from the first attack;

attack; and are found in a soft, regular pulse, an open, soft skin, a gradual abatement of the affection of the head, of the restlessness, and of the anxiety about the præcordia; the patient retaining his medicine, and calling for farinaceous food which sits lightly on his stomach; these, together with a change in the countenance, from being flushed, overcast, and confused, to a serene and more natural complexion, and from a change in the state of the bowels, from being obstinately costive, or having evacuated frequent and very black or watery stools, to a natural fæcal motion, may be looked upon as constituting a favorable prognosis: all these appearances have in some instances occurred very suddenly, but it more frequently happens that they are gradual and progressive, requiring some hours, or perhaps a day from their first abatement, to arrive at the state we have here described, and until which, the patient cannot be pronounced out of danger.

No satisfactory conclusion is to be drawn from the appearance of the urine, it being usually

usually high-colored without a sediment from the commencement, and but keeps pace with the other symptoms, in gradually returning to its natural state; when the febrile symptoms go off as has been described, they never return, and the disease may be said to terminate here, and the patient to assume a state of convalescence.

But if the febrile symptoms do not abate in thirty-six, or at most in forty-eight hours, or if they do abate previous to these periods, and the restlessness and the anxiety about the præcordia continue, and if to these symptoms there should be a suspicious appearance on the countenance and skin, and a slight vomiting of a ropy fluid with a dirty sediment, such as have been already described, the patient may be considered in the greatest danger, as but few under these circumstances recover.

SECT.

SECT. III.

On the pathology of the endemic continued fever of Jamaica.

PRACTITIONERS have been as much divided on this subject, as in the mode of treating the disease, a difference of treatment naturally arising from a difference in opinion respecting its causes and nature.

By those who considered the first symptoms to be inflammatory, copious bleeding, active purging, with the subsequent use of antimonials, and such other means as determine to the skin were adopted to prepare the patient for the bark, which was thrown in as soon as the fever abated, and the state of the stomach promised to retain it; in short the disease was treated, and consequently considered as the endemic remittent with inflammatory symptoms, induced by the vigor of the European constitution.

By

By others, it was defined "a New Disease" of a contagious nature, but marked with symptoms peculiar to itself, and differing in many respects from contagious diseases in Europe.—Mercury was indiscriminately administered, because all other remedies had been ineffectual, and continued to be prescribed because some instances of recovery followed its use; but it does not appear to have been explained, or generally understood, upon what principle this medicine effected a cure; the explanation of its votaries seldom amounting to more, than that it acted as a "specific;" which is no explanation at all.

I am very apprehensive, from experience, that both parties have been too sanguine in their practice, and that many of the successful cases have been confounded with the common remittent; and that as yet we have not ascertained what is the most judicious mode of treating the disease: and I am likewise convinced that there are many cases, which, from the first attack are fatal, and which from their nature, totally
exclude

exclude the chance of recovery by medicine.

However all this may be, we shall endeavour, by the aid of some particular circumstances which attend this disease, to account for its more distinguishing symptoms; and by considering them together, bring such light upon the causes of derangement in the animal œconomy as the nature of the subject will admit; and which perhaps may lead to a rational mode of practice.

It has been observed, that the subjects for this disease, generally speaking, are in the full vigor of life, such as lately have left their native country, in a cold climate, with a tense fibre and a full plethoric habit; or in fewer words, in a state of high health; in their voyage to the West Indies, some time previous to their arrival, a system of relaxation commences from the increased solar heat, and continues to increase progressively after their arrival; as yet the relaxation extends no farther than to the fibres of the voluntary muscles, and the
energy

energy of the nervous system is proportionately lulled; the stimulus of heat counterbalances this atony, from which the blood continues to circulate with its usual force, and the secretions as yet suffer but a trifling alteration: at this time should some circumstance arise, be it fatigue, or intemperance, or great exposure to the sun, or whatever else may, by its long continued stimulating action, destroy, or even greatly impair the present capability in the system, of conveying the power of action to those parts under the dominion and protection of the will; the consequence must be, by a well-known law of the animal œconomy, that the action of the involuntary muscles will be proportionately increased, and the circulation of the blood thereby quickened in the arteries, from their tone as yet not being much impaired, which will force the blood hastily and in an unusual quantity into the veins, whose fibres not being very elastic, and now less firmly supported, on account of the relaxation of the surrounding muscles and membranes, must

must yield to the pressure of the newly-impelled blood, so as to induce a plethoric state of the venous system.

This state of the sanguiferous system is observable in a less degree, on ordinary occasions, when the action of the heart and arteries is increased by common exertion. Look at the newly-arrived European after common exercise, and see how his countenance is flushed, mark the turgescence of his veins, and take the whole appearance of his countenance into your consideration, and you will find it to denote a very unequal circulation. Observe with what facility the robust and the athletic are fatigued, it will prove to you in what degree the voluntary nervous energy is impaired.

This notion of a venous plethora existing, is still further confirmed by the state of the blood of such persons as have been attacked with the continued endemic fever, in which instead of exhibiting an inflammatory appearance, separates a crassamentum of an homogeneous and loose texture;

beside, the state of the pulse, the flushed countenance, the turgescence of the vessels of the eyes, the affection of the head and lumbar region, with the apparent strength and vigor of the patient in the latter stage of the disease, which were considered as signs of an inflammatory diathesis, may be explained upon physiological principles from our manner of considering the animal œconomy to be affected, rather than by the supposition of an inflammatory diathesis existing, which really does not exist.

Having established that a considerable venous plethora exists in the description of people particularly liable to the continued endemic fever; let us consider the effects produced on the system in this state, by marsh miasma highly concentrated from particular circumstances, such as have been proved in a former chapter to combine in giving it additional force.

It is not intended that the essential properties of marsh miasma, or the manner in which it acts upon the human body be here investigated; but what will tend equally

equally to our purpose, and what we are more likely to come at will be noticed; viz. such derangement of the animal œconomy, as never happens but when the air is filled with this miasma, and which therefore, to the greatest degree of probability, may be considered as the cause of such derangement.

The spasmodic affections which form the character of the idiopathic fever, ever since the doctrine of fever has been understood, have been attributed to miasma, or to contagion, the former of which, is applicable to this case.

The state of the subject for this fever, having been considered, and the tendency of the remote cause hinted at, we shall proceed to discover how far these explain the phenomena of the disease.

In the first place we perceive, that the person acted upon by this poison, or stimulus, or spasm-forming cause, or to be plain and distinct, by the marsh miasma, possesses a partial diminution of the nervous energy, and of the muscular tone, in such degree

as to prevent the accession of inflammatory symptoms from the action of the miasma, and yet retaining so much power as to carry the disease beyond the intermittent or remittent form; hence the consequence of the application of the miasma to a body under these circumstances, is a longer duration of that spasmodic affection throughout the system which takes place in all fevers; and an unequal circulation arises from the partiality of the nervous energy, and of the muscular tone as before stated, which render particular parts more obnoxious to spasmodic affections than others; these together cause congestions to be formed in those organs whose vascular system is chiefly venous, and whose circulation is naturally languid and complicated.

The severe affection of the head, which the patient says girds it as with a cord, the acute pain in the course of the spine extending down to the thighs, the anxiety about the præcordia, the hurried, laborious and unequal respiration, all argue a spasmodic affection: besides, the eternal grin which

which fits upon the countenance, is as much a spasm as the risus sardonius: and further, the stomach by receiving liquid until the distention excites its irritability to produce vomiting, evidently declares the presence of spasm on the pylorus; to these observations may be subjoined the obstinate costiveness of the bowels, the peculiar tenseness and heat on the skin, and the irregularity of the pulse, which, together with the defective state of the absorbent system, as was made manifest by the inefficacy of mercury, both by external application and given internally, put this matter beyond controversy. The peculiar affection of the brain and liver in this disease, are clear elucidations of our opinion of congestions, which may partly owe their existence to the disposition which exists in the body at this time to venous plethora, and partly to the operation of spasm, to which such parts under these circumstances may be particularly exposed.

This process of spasm and congestion will serve to account for the succession also,

of symptoms as they arise, in the course of the disease.

In the head we find the pain, the nature of which we have already considered, continue with unabating violence, until the period when the characteristic symptoms of the second stage of the disease begin to appear conspicuous; that is when the plethoric state of the venous system has advanced to a certain degree, to such a degree as to render the face somewhat bloated, and to distend the jugulars so as to make a swelling appear about the parotid glands; the symptoms which follow, shew what state the veins of the liver, stomach, and other viscera must be in at this time; and what reason have we to think that at this time the large venous sinuses of the head should be exempted from such a state; on the contrary all the succeeding phenomena tend to prove it, as well as the present state of such veins of the head and face, as come under the observation of our senses.

We know from experience that a certain degree of pressure on the brain acts as an opiate;

opiate; a greater degree produces stupor, checks the secretion, and renders the person insensible to hunger and thirst; a still greater degree will produce coma vigit' or delirium, and if continued further will produce convulsions and death.

That there is a pressure upon the brain at this stage of the disease, is evident from what has been said of the venous plethora, and is rendered still more obvious by the manner in which the patient answers, when spoken to, and by the hurried manner in which he takes his nourishment and his medicine; to what degree this pressure amounts, must be determined by the effect it produces on the different organs of the body; but this is certain, that it soon increased rapidly, by the convulsed state of the body which quickly supervenes. We now see that the cause which produced this fallacious stage of the disease, is but a less degree of the same cause, which soon after produces death.

For although during this stage, the spasm occasioned by the miasma, may not have

power to act so generally, as appears by the cessation of pain, and by the diarrhoea which sometimes succeeds the constipation of the bowels, yet the congestion still advances, until ruptures in the vein of the stomach and kidneys, intestines, and sometimes of the nose take place; such hemorrhages are evident from the streaks of blood intermixed with what is vomited, and from the appearance of the stools and urine.

The suffusion which begins to appear in the second stage, about the neck and face, and afterwards spreads itself over the whole body, is the natural consequence, of the bile having been obstructed in its passage through the duct, in the first stage of the disease: which without much difficulty may be believed to have taken place from a spasm on the duodenum; it not being probable that this portion of the intestinal canal should be exempted from an affection that occupied the other parts of it: the state of the absorbent system as already noticed will account for the
slowness

slowness of the introduction of the coloring matter of the bile into the system, and will probably also account for many people dying of this disease without becoming yellow.

The hurried and laborious breathing, from an affection of the intercostals and diaphragm, and probably from the difficult passage of the pulmonary circulation through the lobuli bronchialium; the cool, but dry husky state of the skin, the irregular action of the arterial system, and the moist, livid tongue, will severally find an explanation in the observations we have made on the proximate causes of the several symptoms of the disease.

In the last stage of this disease, we find the absorbed bile suffused; the blood from the ruptured veins dying the vomit, the stools, and the urine, black; we find a spasm on the pylorus which induces the irritability of the stomach to be excited, so as to produce vomiting on a very small degree of distention; we find the congestion in the veins of the head also, so much

increased as to produce coma or delirium, and by the affection of the brain, to occasion some strong animal struggles for relief, which at length amount to violent convulsions, that quickly terminate in death.

SECT. IV.

APPEARANCE ON DISSECTION.

THE appearance which the different organs exhibit on dissection serve to confirm the above opinion.

We do not observe any marks of inflammation in any of the viscera, or on any other parts of the body.

It is true that the stomach and upper part of the intestinal canal, are frequently found black and apparently gangrenous, but this arises from the rupture of the veins which line these parts with dark coagulum. Those veins of the stomach that are not ruptured are very turgent: and the liver is generally much enlarged by
a dis-

a distention of the portal system; the gall bladder is found to contain black porraceous bile, such as had been regurgitated from the ductus choledocus communis, which implies an obstruction to its passage, and a deranged state of the vessels productive of this secretion: ruptured vessels are also to be observed in the brain, but no signs of active inflammation.

From what has been said, the tropical continued fever may be considered a disease arising from the influence of marsh miasma (highly concentrated by circumstances peculiar to a tropical climate), on constitutions which have undergone but a small degree of relaxation; thereby inducing a spasmodic affection on a system full of blood, the tone of which is so disposed, that instead of removing the general plethora, it rather renders it partial, and thereby partially increases it: this partial increase falling upon the veins, occasions congestions in the venous system in general now under the influence of spasm, but more especially where it is most complicated, namely in the liver and in the

the brain: on the latter of which such pressure is made, as ultimately to effect a destruction of power in the organs of life; and thus to produce death.

SECT. V.

On the prevention and treatment of the endemic continued fever of Jamaica.

AFTER what has been said on this disease, it is very evident what are the most probable means of guarding against its attack, or of obviating its more fatal effects, when it occurs. The first object certainly is to reduce the system to that state of relaxation, or in other words to lessen the plethora which exists in most Europeans lately from their native country, so as to induce fever, when it does occur, to put on the remittent and intermittent forms, and thereby obviate the fatal effects of violent spasm acting on a plethoric habit: this will be best effected by taking away more or less blood from all persons

persons of this description, immediately on their passing the tropic, unless some very particular circumstance forbid, and by repeating the operation before making land, on all possessing a full habit, or a tense fibre; by their taking at intervals frequent purges, by their avoiding intemperance of all kinds, and by their diminishing the quantity of animal food during the passage.

The good effects of but a part of this plan, were very conspicuous in one of his Majesty's ships which arrived at Jamaica from Europe, at the height of the most sickly season; the crew had been blooded and were well purged on passing the tropic, and the latter operation frequently repeated until they arrived in the West Indies: the consequence was, that though the men were frequently sent on duty on board ships where fever prevailed, and whence the greater part of the crew had been sent away sick and had died, yet these men were not affected, and sickness never became considerable on board that ship; for they lost but two men with fever.

I like-

I likewise had instances within my own observation, where officers of full habit submitted to lose a large quantity of blood, as a preventative, after their arrival; and the consequence was that the attack of fever was proportionately slight when it occurred.

The second object is to choose that season of the year for arrival, when the sun is least powerful, and the marsh miasma least prevalent and concentrated; and the time which should be chosen seems to be, between the latter end of December, and the beginning of the succeeding April, which period is best suited to the constitution of newly-arrived Europeans; for by the intervention of the north-winds, the effects of the autumnal heats and rains (so productive of disease in its worst form) are in a great measure obviated.

The third matter requiring attention is, that Europeans on their first arrival, reside in situations whose climate approaches nearest to that of Europe, until their constitutions have undergone the necessary degree of relaxation: Jamaica affords many

such situations near enough to the principal towns, Spanish Town and Kingston, to enable those, whose business may oblige them to have communication with those places, to sleep and spend most of their time in a cool and healthy situation: however it would be much better and more safe to avoid leaving the mountains, until the constitution had become somewhat assimilated to the climate, when it may be deemed safe to reside in the towns, or on the plains altogether.

The Liguanea mountains near Kingston, and the Red-hills or St. John's mountains near Spanish Town, afford situations where the climate comparatively speaking, is temperate, and where any other kinds of fever than mild intermittents, are rare occurrences.

But as it happens that many Europeans are so circumstanced as not to have it in their power to reside in such situations, it will be the more necessary, that they pay great attention to what comes under the fourth consideration.

It

It has been observed that the greatest predisposing causes are, acts of intemperance of all kinds, fatigue, or exposure to the sun; the next are fear, grief, or whatever can be productive of a permanent or transitory debility. It is obvious to every one who has experienced the effects of intemperance, what degree of languor it induces, consequently how much a person under such circumstances must be exposed to the effects of marsh miasma, which such predisposition enables to produce fever; and without which, an idiopathic fever cannot be produced.

It is equally obvious what must be the consequences to a person of a plethoric habit, and heated by liquor previous to his being attacked: all the symptoms will be much aggravated, and the worst description of fever will probably be induced.

New-comers therefore should be temperate, though perhaps not too abstemious; they should decrease the proportion of animal food which they have been accustomed to take, and make up the deficiency
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in vegetables. The same may be said with respect to wine, the quantity of which should be lessened in a small degree, without running into the opposite extreme; for it is safer to exceed in drinking than in eating; the inconveniences of the former may sometimes be remedied by rest and abstemiousness; while those of the latter, besides increasing plethora, are apt from the digestive powers being very soon relaxed and weakened by the climate, to occasion more permanent debility than the other, and in the event of a fever, to give rise to some very distressing symptoms.

All fermented liquors and spirits are hurtful, and the most proper vinous liquors seem to be, old Madeira wine and claret.

Keeping late hours may be deemed an act of intemperance, and a powerfully predisposing cause; consequently retiring to bed and rising early, seem to be circumstances worthy of attention; indeed without observing the latter, exercise cannot be taken without exposure to the sun, the most powerful of all predisposing causes. There are
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so many instances on record of people having been attacked with the endemic after fatigue in the sun, that many physicians are disposed to attribute the fever which arises, totally to this cause; however this is attributing too much; for by the observations of the most experienced practitioners in tropical countries, it appears, that however much, persons are exposed to the sun where marsh miasma does not prevail, the attack of fever does not ensue; and that whenever there has been an instance of idiopathic fever in situations that are deemed healthy, it will be found upon careful inquiry, that the patient had been exposed to marsh miasma in an occasional visit to some place where it exists. There can however be no doubt, as has been before hinted, that there is no predisposing cause whatever so powerful as exposure to the sun, and therefore new-comers cannot too cautiously avoid its influence. Yet notwithstanding the truth of this, the newly-arrived Europeans, whether from seeing others do it with apparent impunity, or from bravado, in wishing to be
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be thought fearless of the climate, parade unnecessarily about the streets; and it is a common remark among the inhabitants, that you may know a new-comer by seeing him walk in the middle of the streets, while other people confine themselves to the covered ways, or piazzas.

After having established the necessity of the precautions we have recommended, it will be obvious to those whose business or employment may oblige them to go in the sun, that a top-chaise, or umbrella, or even riding on horseback, will each in their degree, prevent the ill effects which otherwise might arise.

The night-air from particular situations, is likewise very hurtful, and should be avoided as much as possible; but as persons who come to the West Indies to reside, are obliged from the nature of their several occupations to be occasionally exposed to it, all that we can desire is, that they do not expose themselves to it unnecessarily; however it is an eligible alternative to exposure

to the sun, this being the most dangerous in its consequences.

Among the next debilitating or predisposing causes, we have noticed fear and grief, to which we may add also fatigue of body and mind, and excess of venery. The debility induced by fear and grief is well known to every one: the former, as observation informs us, has too often been accessary to the production of the endemic, and on its accession has been the means of giving it a fatal tendency: while on the other hand I am convinced many have evaded a fit of illness from a firm and cheerful mind; and such of this description who have been attacked, by having confidence in themselves and in their physician, have been enabled to go through a disease, which by the aid of fear would have proved fatal.

In the prevention of tropical diseases, attention to dress usually has been considered one of the necessary precautions. It certainly may be deemed a subject of
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some consequence for the preservation of health in warm climates; but its injunction ought not to be placed in competition with more important regulations that too frequently are neglected by many, who from the one interfering with the inclinations and requiring more self-denial than the other, pay the most rigid attention to this secondary precaution against sickness. The valuable regulations to which I here allude, are noticed under the head of temperance, early hours, and avoiding exposure to the sun and night-air. In the article of dress, the newly-arrived European with propriety may adopt that which is worn by the natives, and next to the skin should apply flannel or calico, (one of which indispensably is necessary,) according as he finds the one more suitable to his feeling, or former habits than the other. Both these articles now are so generally used in the West Indies, that it seems hardly necessary to notice them, since the stranger very soon falls into the habits peculiar to the country where he happens to reside: therefore they are merely mentioned to

enable him to prepare himself with that, which on his arrival his own observations and good sense will naturally suggest.

Having made some general remarks on the probable means of preventing an attack of this fever; our next consideration is naturally directed to the mode of obviating its more fatal effects when the disease occurs.

From these, there are evidently two indications; the one to remove the spasmodic affection which prevails throughout the whole system, the other to prevent, or remove congestions.

Upon both these principles, it would appear that venesection as an antispasmodic and antiphlogistic remedy, would by the very terms, be the first and most proper object to be attended to for attaining a cure: but it is to be recollected that venesection is an antispasmodic no further than by its removing the tenseness of the fibre, and thereby incapacitating it to perform the act of spasm under the influence of an excess of ordinary stimulus; but that when
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the system is under the influence of any of the poisons, the power of this antispasmodic is very limited; and under a similar affection the system appears to be in this disease, though you may not choose to call marsh miasma a poison: and as to its antiphlogistic properties (retaining the old term for sake of precision) we do not contend against their efficacy: but it must be remembered that in the commencement of this disease, the arterial system is in a state below the standard of health; that a considerable degree of relaxation prevails in the other parts of the body; that the plethora arises from the inequality of tone in the system, and that this partial plethora commences very early in the disease, nay in some measure before the open attack, and gradually increases by the aid of spasm until congestions are formed. Upon the principle then of its removing inflammation, is to remove what does not exist: this is the more evident from the appearance of the crassamentum of the blood taken away, which does not appear at all

fizy, but on the contrary is of a loose and flabby texture.

These observations do not affect the efficacy of venesection before the disease is perfectly formed, and therefore upon the same principle that blood-letting was recommended as a preventative, I am of opinion that if it were adopted the first moment the patient begins to complain, in many instances a total stop would be put to the progress of the fever.

However as to blood-letting after the disease has formed, I have given the practice repeated trials, and there are practitioners in Jamaica as well as myself, who can vouch for the fatality of its consequences.

As we do not know any thing concerning the nature of the cause which produces the spasmodic affection of the system, we cannot determine any remedies *a-priori*; I shall therefore confine myself in speaking on this part of the subject, to that which experience found more effectual.

To procure a number of copious stools within a few hours after the first attack, is
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one of the most important parts of the cure; and as the constipation of the bowels proceeds from spasm which has now become very general, it is advisable both from reason and our experience to immerse the whole body in a warm bath, and keep it there, as long as the patient can remain without inducing syncope, the bath being kept in the same temperature by frequent supplies of hot water; the patient must now be taken out, dried carefully with flannel, put to bed, and an active enema be administered; jalap, calomel, and antimonial powder should be given in small but repeated doses, with a view of acting in the double capacity of a diaphoretic and a purge: if the medicine produces no effect in the course of a few hours, the warm bath and the enema should be repeated in the same manner as before, and a blister may be applied to that part of the abdomen where the patient complains of the greatest uneasiness, a symptom that generally occurs when the bowels have not been well evacuated in the course of a few hours after

the attack: the purge is now to be repeated, and this mode of treatment pursued until the necessary effect is produced: for when purgative medicines do not operate soon after they have been administered, or only produce a few small watery motions, no good effect has been produced, and the patient may be considered in the greatest danger; and this is too often the case, for in many instances where no other means than the administration of purgatives have been adopted, twenty-four hours have elapsed before any effect has been produced.

Emetics are in no instance serviceable, or even safe; and blisters, unless it be in the early part of the disease, never give relief; they too often fail in every stage of it, and except for the purpose of allaying the irritability of the stomach, or of removing the spasmodic affection of the bowels in the first stage of the disease, it is doubtful whether they can ever be applied to advantage: however it is a usual practice to apply a blister between the shoulders

ders to relieve the violent affection of the head, and when relief is afforded, it is often difficult to ascertain how far it may be attributed to the blister; but as this practice cannot be productive of harm, and as their effects on some occasions are doubtful, the practitioner may probably think it his duty to have recourse to blisters in the first stage of the disease: but as I never saw the least use from them in the last stage, I consider them inadmissible from the additional distress they create to the patient in his last moments.

If considerable relief be not afforded in the course of the first twenty-four hours by the repeated trials of the warm bath and frequent enemæ: and the bowels do not yield to the treatment, as has been pointed out, more decisive means become necessary.

Congestions in the abdominal viscera and in the brain may now be considered to have formed, to remove which must be the grand object in view.

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On this principle mercury may be used, and on this principle it has sometimes proved effectual; for its power of stimulating particular parts of the system beyond others, are well known; by its efficacy in syphilis, in hepatitis, and in hydrocephalus, we perceive its effects on the absorbent system in general, on the languid vascular system of the liver, and on the complicated vascular organization of the brain. Although we do not know precisely its *modus operandi*, yet from analogy it is no empiricism to recommend its use in this disease.

Calomel has been given in this fever to an extent unheard of, in the former annals of medicine: it has been administered by many practitioners, by repeated doses in the course of a few days, to the amount of five hundred grains, without producing the least symptom of ptyalism, or any effect upon the bowels; however part of it must have been thrown up in the act of vomiting in the same state it had been received into the

the stomach: mercurial frictions have been tried with the same freedom, and with the same effect: under these circumstances but seldom any benefit was derived from the use of mercury: from this it would appear, that the default lay in the inefficacy of the medicine; but observation informs us that generally speaking, when the mouth of the patient became affected, which sometimes took place suddenly, and with a small quantity, comparatively, to what has been given without effect, he recovered: the natural inference from this is, that when the absorbent system will take up the mercury and introduce it into the system, it will be effectual; and when it is given and does not produce any effects, it is reasonable to suppose the absorbents will not receive it, and in this case it matters not what the quantity be which the patient has taken.

From this consideration, it occurred to me that the hydrargyrus muriatus, commonly called corrosive sublimate, might act with greater success, by stimulating the absorbent system to perform its usual functions, and

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I was the more induced to expect this from having observed in cases of syphilis, that this preparation of mercury was more rapidly introduced into the system than any other, I therefore imagined it might prove a successful remedy in a complaint, where the cure seems to depend on mercury being introduced into the system without loss of time.

I saw no objection to the use of this medicine, but the risk of irritating the stomach and bowels; however as it admitted of being administered in a dissolved state, I found that by giving it in a large proportion of the aromatic tincture, with the addition of some tincture of opium, occasionally, no bad effects arose from this cause.

The following is the form I generally observed :

R Hydrarg. muriat. gr. ij.

Solv. in

Tinct. cinnam. compos. ℥viij.

Adde

Aq. fontan. ℥i.

Tinct. opii ℥ij. M. mist.

Three

Three table spoons full of this mixture, containing about the eighth of a grain of the sublimate, were given every hour, until some affection of the mouth was observed, or the more alarming symptoms were considerably abated; when it was administered at more distant intervals, or omitted altogether. The proportion of the tincture of opium was increased or diminished in each dose, as circumstances required; though when combined with the mercury, it did not appear to affect the head, even when given in very large doses; nor did the compound tincture of cinnamon increase the heat of the skin, or add to the fulness or quickness of the pulse; a circumstance that strongly proves the absence of inflammation in this disease.

I gave this medicine to fourteen patients labouring under the tropical continued fever, two only of which died, and these had been ill two or three days before it was administered.—It affected the mouths of those who recovered (one of whom is a near relation) in thirty-six, or at most in

forty-eight hours, and as soon as symptoms of pyralism appeared, the violent affections of the body began to abate.

These experiments, which were made during the latter part of my residence in the West Indies, ought not however to have more weight, than to induce future practitioners to give this medicine a fair trial in such cases; and ascertain by the test of an enlarged experience, whether it be more suitable to the cure of this dreadful disorder, than any other remedy that has been hitherto adopted.

It must be allowed that this disease has on too many occasions, baffled all medical skill, and therefore it justifies every means to be tried, that will promise a prospect of treating the disease with greater success.

The treatment of patients in a convalescent state from fever, will be fully considered in the succeeding chapter; but it is here necessary to remark, that the symptoms, and often the treatment, of the continued fever, induce such a degree of debility, as to demand the greatest attention
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and address to prevent its proving fatal. It therefore becomes absolutely necessary to seize the first favorable opportunity of throwing in the bark in the most efficacious way, both by the stomach, and by the rectum, the doses of which should be administered in as large proportions as the state of the stomach, and other circumstances will admit. To relieve particular symptoms, the vitriolic æther, or any other medicines of the antispasmodic, or stimulating class may prove necessary, and in many instances on such occasions may be used efficaciously; while a judicious use of wine, a well-regulated nourishment, and an attention to the state of the bowels, are all objects of the greatest importance in promoting the recovery of the patient.

The treatment of typhus fever does not form an essential part of a treatise in tropical diseases; but as that disease appeared in Jamaica, in a form which in some degree partook of the tropical endemic, it becomes necessary to mention that the same process of spasm and congestion takes place in this variety,

variety, as in the genuine tropical fever; but owing to the two remote causes of fever being combined, the resistance proportionably was less, and therefore debility in the first instance, and throughout the whole disease more generally prevailed. The warm bath, and the early evacuation of the bowels were equally necessary, but the latter operation could not be carried to the extent; in this disease, which rendered it proper in the true tropical fever. In this variety, the mercurial treatment was earlier indicated, and the bark, stimulants of all kinds, and a generous nourishment, were an indispensable part of the cure.

CHAP. VII.

*Practical remarks on the remittent and inter-
mittent fever of Jamaica.*

SECT. I.

SYMPTOMS.

THE remittent and intermittent fever of Jamaica are so closely connected, and so frequently run into each other, that it seems more proper, to consider them modifications of the same disease, varied by particular constitutions, seasons, situations, or modes of treatment, than to class them under two distinct heads.

To this form of fever, people of every description are liable; and its modification seems much regulated by the length of time the patient has resided in tropical countries; but no length of residence can exempt the body from slight attacks of this disease.

Europeans newly arrived, when attacked by this disease, exhibit such bad symptoms, that it may be questioned wherein rests the difference between the worst remittent, and the mildest continued endemic fever towards their latter stages: but those who have resided some time in the country, exhibit a fever marked by distinct remissions, and much milder in every respect than when the newly-arrived European becomes the subject of attack; and the white natives, but more particularly the people of color and negroes, sustain a much milder gradation of the disease, these seldom experiencing any other than its intermittent form. Women too, and children are less liable to this disease *cæteris paribus* than others, but neither are exempt from it, and the former suffer still less than the latter, owing probably to the one submitting more readily than the other, to the necessary means of obviating fatal consequences.

Among soldiers, in whom acute diseases of every kind assume the worst form, each modifi-

modification of this disease too often is fatal, frequently being accompanied by a train of symptoms, not observable in any other description of people.

The prelude to every modification of this disease, is distinguished by symptoms, more or less ambiguous, many of which apparently are unconnected with fever, and are of such nature as not unfrequently to deceive the experienced practitioner.

In some, a confused state of the head, or disordered apprehension, obtains; in others, a violent head-ach without fever, prevails for some days; but more frequently, symptoms of dyspepsia or a disordered stomach, with a fixed pain in the spine, or in one of the extremities, precede the disease, and continue some days or weeks before it puts on the decided form of fever: these ambiguous symptoms are still more equivocal among soldiers, who from a dislike to the confinement of an hospital, seldom report themselves sick, until they have experienced one or two exacerbations,

of fever; but among the inhabitants of the higher order, who more readily complain of indisposition than others, these prefatory symptoms may generally be noticed; however it must be understood that these observations do not apply to the newly-arrived, on whom the attack of fever is more sudden, and generally takes place without previous indisposition.

When any of these symptoms spoken of, are noticed, and their relation suspected, an eligible opportunity is thereby afforded to obviate a dangerous fit of illness, in procuring plentiful evacuations, followed by an early and a free administration of bark; but too frequently these harbingers of the remittent pass by unnoticed, or when attended to at all, are disregarded as of serious consequence, being attributed to errors in living, or to similar causes, until the disease is ushered in by a regular shivering fit, or a rigor, or at least by a distinguishable chilliness.

This marked attack of fever, always occurs very early in the morning, most
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frequently about day-break, or on the act of arising from bed ; and is attended by nausea, and a general weariness, or slight local pains, a dejection of spirits, and a small contracted pulse : during this stage, the skin appears wan and shrivelled, but it soon becomes ruddy and smooth, from a heat having commenced in the palms of the hands and in the soles of the feet, which extends itself over the whole surface ; this heat increases, without producing moisture, the pains become general and severe, particularly in the forehead, the eyes appear full, and the countenance is preternaturally flushed, the mere dejection of spirits which hitherto obtained now becomes great anxiety, attended by some confusion in thinking, the nausea has increased to retching, and bile begins to be thrown up from the stomach ; during the progress of these symptoms, the pulse accelerates and sometimes becomes full, but seldom hard.

The first paroxysm of fever, very often affords a sufficient prognosis, to ascertain, what form of fever the disease is likely to assume,

If with some previous indisposition the patient be seized, with a regular shivering fit, which is succeeded by the hot stage in a degree somewhat less than the continued fever exhibits, and which continues for twelve or fourteen hours, and then remits; the disease under such circumstances, usually will terminate in an intermittent fever.

But when after some previous indisposition, a slight rigor or chilliness comes on, and is quickly succeeded by the hot stage which is mild and remits in a few hours; it may be expected that the disease continue to preserve the remittent form through its whole course.

Having so far discriminated the remittent from the intermittent form of fever, the symptoms and termination of the former will first be traced, which shall be followed by a few remarks on those of the latter.

The accession of the remittent as has been observed, usually takes place early in the morning with a slight rigor, which is succeeded by a febrile heat that continues a few

few hours and then goes off, by which the patient is so much relieved, as to consider the disease no more than a slight cold; there yet, nevertheless remains some symptoms of fever, sufficient to keep the medical practitioner on his guard against delusion: as the evening approaches, these symptoms become more conspicuous, and in some instances a chilliness supervenes, which denotes a return of febrile heat, but more frequently the chilliness is absent, and the exacerbation proceeds in either case to a much greater height than in the preceding paroxysm. The skin is now dry and hot; the eye and countenance which during the remission had nearly recovered their natural appearance, are again flushed, and their vessels seem turgid; the head, the spine and extremities are much affected with pain; there is much anxiety and tightness about the præcordia; and the respiration is hurried and uneasy; the tongue is dry and furred with white, and the thirst is considerable; the stomach rejects every thing but small drinks, and not unfrequently

even these are rejected; much bile is now thrown up by vomiting: delirium though a frequent is not a constant symptom, but there always appears a confusion of ideas and a disturbance of the intellectual faculty; the urine is pale, or high-colored according to the constitution of the patient, but in both it is transparent and passed frequently, and in small quantity, in many amounting to strangury, in a few to suppression: during these symptoms the pulse is *quick*, frequently *full* but seldom *hard*.

The continuance of this paroxysm extends to twelve hours in most patients, in others to twenty-four, and in some to forty-eight; and in a few cases, it protracts itself to three days; during which there is not any appearance of remission, rendering it difficult at this time to discriminate the disease from the continued endemic, without having had a knowledge of the rise and progress of the early symptoms.

When a remission is about to take place, the violence of the symptoms abate; and
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soon after, the pulse becomes more slow and expanded, a perspiration commences in the palms of the hands and soles of the feet, which gradually extends over the other parts of the body, accompanied by a softness of the skin; the pains in the head and limbs abate, and the thirst decreases, the tongue becomes more moist but still remains white, the urine is made with more ease and in larger quantity, but with little sediment; the countenance becomes serene, and recovers its natural appearance; and now the patient may fall into a refreshing sleep.

The degree of danger in which the patient stands after the second paroxysm may be estimated by its duration; for where it continues longer than twenty-four, or thirty-six hours, such an alarming state of debility is induced, that in many instances, death imperceptibly supervenes; while in others, where the patient has been well evacuated, and the remission happens on the evening of the second paroxysm, a termination of the disease is produced; but
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it more frequently happens that a remission takes place in about eight hours after the second exacerbation, generally between the hours of twelve and four A. M. still leaving behind some symptoms of fever, such as languor, quick pulse, slight head-ache and nausea, which continue until four, five, or six in the evening, when another exacerbation takes place, unattended by rigor or chilliness.

If the course of the disease be not altered by medicine, each succeeding exacerbation will be formed of aggravated symptoms; but however, the remission may be looked for early the next morning, which will be followed by another exacerbation some time in the forenoon, and this will be of still shorter duration; for it may be expected to remit on the same evening, the disease putting on the form of an irregular double tertian.

The remittent fever, as it appeared in Spanish Town, was not however confined to any particular form or type: as sometimes it assumed that of a remitting tertian; again it

it appeared as a double tertian, or somewhat resembling the form which Dr. Cleghorn has expressed by semitertian; and oftentimes it seemed to anticipate a quotidian, that is the patient had two exacerbations every day, one of which appeared to be a slight anticipation only, of the other; and in many other cases, the transition from exacerbation to remission was so rapid and confused, as to make it difficult to class the disease under any particular head, but partaking more of the continued form than any other.

When the disease is successfully treated in the early stage, it usually terminates after the third or second exacerbation: but if medical efforts be unsuccessful, or the disease has been allowed to run its natural course, then each remission becomes more indistinct every day, until the patient becomes constantly delirious, the thirst growing intense, the tongue parched and frequently covered with a black fur, which also, appears about the teeth and inner membrane of the lips; the stomach attains
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an irritability even during the remission which occasions every thing taken to be returned; the pulse becomes quick and agitated, sometimes intermitting; the countenance wears an air of despondency and seems pinched up; the eyes look ghastly, and the patient lays upon his back; the skin sometimes wears a husky dryness, at others bears a cold sweat; the urine is made with great difficulty, and does not separate on standing; respiration is laborious and painful: to these, convulsion or hiccough supervene, which attend the patient's death sometimes so early as the third day, but more frequently on the ninth, eleventh, or fifteenth, and in some instances so late as the nineteenth, twentieth, or twenty-first day after the first accession of fever.

Having described the favorable and fatal termination of the remittent fever in general, it may be now proper to make a few remarks on particular symptoms as they occur from peculiarity of constitution.

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It may be observed in persons with a weakly constitution, that the force of the disease is directed more particularly against the nervous system; in such instances the febrile symptoms never run high, the spasmodic pains are seldom severe, the stomach is seldom affected with more than nausea, the countenance is but little flushed, the pulse is small and quick, the tongue is white but not very much furred, the urine is pale and in small quantity, the skin is warm but always disposed to be open, the bowels are evacuated without difficulty, and remissions are easily to be procured: but in such cases the mind is unusually discomposed; the patient is under the strongest influence of apprehension, he fetches deep and heavy sighs, complains of a tightness and very great oppression about the præcordia, and is uncommonly restless and wakeful: a fainting comes on in an erect posture, and where much evacuation has been caused, symptoms of general debility appear very early in the disease: frequent nervous startings, particularly when the patient

patient has been dozing, wild dreams and a confused imagination between sleeping and waking which resemble delirium, are among the other symptoms of this variety of remittent fever; but by no means portend the danger which their appearance suggests in the last stage of the ordinary remittent.

Though the nervous variety of the remittent occasionally appears among soldiers of weakly habits, yet it is more observable among officers and the higher order of white inhabitants, who have delicate and irritable constitutions; and still more so, among those who devote more time to literary pursuits than to bodily exercise.

This variety of the endemic is not dangerous, if evacuations be not too freely made, if the patient be encouraged in a notion of safety, and is well supported by proper diet and a judicious use of wine and bark, which may be given much earlier and more freely in this, than in any other variety of the remittent; for where it ends fatally, debility seems to be the principal

principal cause of death; a muttering delirium precedes it, and the powers of life gradually die away.

In an attack of the remittent upon muscular or plethoric habits, such as approach near to the European constitution, there is an increased action of the arterial system, but not such as to denote either general, or local inflammation; the pulse is more full but less quick than in the nervous variety, the head is more severely affected, the vessels of the eyes and face are tinged with red blood, and the face seems swoln; there is also an evident fullness of the vessels of the abdominal viscera by the tension and pain felt on pressure, the bowels are obstinately costive, and the urine invariably bears a high color: the thirst is intense and the tongue white and furred, but seldom parched, or disposed to turn black. In this variety, the paroxysms of fever are usually long, and remission is with difficulty induced: the fatal or favorable tendency of the disease is however early, since when the force of the fever is exhausted, it

it either ends in a comatose state or unmanageable delirium, which soon brings on convulsions and death; or there is a complete remission of fever, or a total solution of the disease.

The subjects who give rise to this variety, are chiefly to be found among officers, and sometimes among the higher order of white inhabitants, who to a strong constitution or full habit, add what is usually termed good living, such as eating plentifully of the richest dishes, and indulging largely in malt liquors: persons who are corpulent, with large heads and short necks, such as are generally understood to be subjects for apoplexy, suffer more from this disease than others, as with them it very rapidly terminates by coma. Among soldiers, whose constitutions in general, seldom retain the plethoric cast for any length of time, and whose mode of living is unfavorable to such diathesis, this variety of the disease is less observable.

But it is in a mixed constitution which had previously possessed the features of the last,

last, but which owing to irregularity in living, or some other circumstances, may have acquired some of the character of the former, that the remittent fever proves the most perplexing, tedious, and fatal: and it is this variety which prevails most generally among soldiers, and the lower order of white inhabitants, who have injured their constitutions by more frequent exposure to the solar heat, and by other irregularities. In these, the attack is announced in various ways; in some, it is ushered in by convulsion, in others, by fainting fits, and in many, by a sudden vomiting of bile; but it more usually is preceded, during a few hours, or days, or sometimes weeks, by a train of ambiguous symptoms such as already have been described. The approach of fever is however frequently sudden, either in form of a complete rigor, or slight shivering, followed by the symptoms of the hot stage in the manner already described in the general account of this disease: these attacks, though violent, seldom produce such long exacerbations, or

such complete remissions as the second variety of the disease.—The pulse is quick, and sometimes full; the bowels are much constricted; the urine seems tinged with bile, which together with the color of the skin and the quantity of bilious matter thrown up by vomiting, evidently shew that there is a larger secretion of that fluid in this, than in any other variety of the endemic: the tongue is furred, with a yellow or brownish tinge; the thirst is intense, and the skin is pungently hot; the head is variously affected, sometimes with a lively delirium, again with a kind of stupor; there is much pain and tension about the abdomen, and the patient is constantly wakeful and restless.

Where this variety of the disease ends fatally, the exacerbations of fever become rapid, and the remissions obscure, until it acquires a more continued form, and bears some resemblance to typhus: symptoms of debility, apthæ on the lips and gums, black scabby eruptions about the mouth and face, which become bloody on being touched, a
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black, parched tongue, a gloomy countenance, with a muddy eye; obstinate costiveness, or a dysenteric state with dark stools, a muttering delirium, a quick, small pulse, a stomach constantly irritable, sudden transitions from a hot, pungent skin, to cold sweats, a hurried and painful respiration, coffee-colored urine, picking up of the bed-cloaths, or catching at imaginary objects, laying constantly on the back, and convulsive twitches of the muscles, all denote the danger of the patient; and he dies sometimes so early as the third or fifth, but more frequently in this case, death happens on the seventh, ninth, or eleventh day.

Having described the varieties of the remittent fever as depending on constitution, it may be necessary to observe, that symptoms of the one variety often are blended with those of another, and that there are adventitious symptoms common to all, which have not yet been noticed: hæmorrhages may occasionally be seen, jaundice sometimes obtains, in a few instances

stances I have witnessed petechiæ, and also black vomit; and in all very bad cases of the remittent, though petechiæ be but a rare occurrence, yet there universally prevails a dirty suffused appearance of the skin resembling recovery from mosquito bites, with black pimples or tumors about the face, which give the disease a resemblance to typhus.

Deafness and tinnitus aurium frequently occur in this disease, and when they appear early, are symptoms of danger; but when they keep off until the latter stage, they may be considered favorable symptoms.

Large hard tumors or phlegmons, commonly called *cat-boils* sometimes precede, and not unfrequently accompany an attack of the remittent fever, and are with much difficulty brought to suppurate. Upon sloughing their core, it is found to have penetrated deep into the subjacent muscles, and sometimes in so much as to expose the bone underneath; to fill the vacancy made by the sloughing of the core is a very tedious process; and indeed a disposition to sphacelate and become gangrenous shews itself

on some occasions, requiring much care, and the most decisive measures to prevent fatal consequences. In some cases a cough will prevail through the whole disease, and an irritable stomach has been found to continue after the solution of fever.

The most dangerous of the symptoms which have been pointed out in this description of the remittent fever, are to be observed very generally among the troops Jamaica.

It is more difficult to prognosticate with accuracy in the remittent, than in the continued fever; for in the latter, there are usually a train of symptoms which are certain fore-runners of death, in which the experienced practitioner cannot be deceived: but in the former, patients recover, when the powers of life appear to be exhausted: as a proof of which, recovery from this fever not unfrequently happens at Jamaica when preparation has been making for the funeral of the patient.

Some discrimination however, may be made; and we shall endeavour to point out the symptoms which usually prove fatal in the remittent, to be distinguished from those which may be deemed dangerous, but under which, recovery not unfrequently happens: and we shall conclude, by noticing such as may be deemed most favorable, and which portend recovery.

The following symptoms generally prove fatal: A delirium in the absence of fever; a pinched sunk countenance; a cadaverous smell from the body, which frequently occurs two or three days before death; the patient always laying on his back, with his legs extended wide, and if not delirious, when asked how he does, he will answer hastily, "I am very well," without discovering the least anxiety about his situation; a bleeding at the nose in the last stage, accompanied by black eruptions about the mouth, and a dirty suffusion of the countenance; a hurried, laborious respiration, with a visible beating and hurried action of the carotid arteries in the absence
of

of fever ; convulsions after the termination of a paroxysm ; these symptoms singly, or combined, usually portend death.

Under the head of dangerous symptoms, may be classed, great force and frequency in the exacerbations of fever ; great debility ; a weak, tremulous, or intermitting pulse ; great irritability of stomach in the absence of fever ; a black, parched tongue ; a glassy eye ; slight hemorrhages from the nose in the last stage ; hiccough ; subsultus tendinum ; and muscular twitchings :—these symptoms indicate great danger, but do not invariably portend death.

Among the favorable symptoms, or signs of recovery, may be noticed, the following, when they supervene the dangerous stage of the disease ; termination of fever, calling for, taking and retaining nourishment ; laying on either of his sides ; the tongue from being black and foul, becoming florid and moist about the edges ; a free and easy respiration ; the countenance clearing up and becoming more serene ; an

anxiety about recovery, and a peevish fretfulness towards the attendants; the pulse gradually loosing its irritable quickness, and acquiring a little firmness in its action; eruptions breaking out about the lips and face, which fill with healthy pus, and are not disposed to bleed on being touched; the skin from being pungently hot, or covered with cold sweats, becoming moist with a general diffused warmth; and the urine from being in small quantity, pale, or coffee-colored, gradually returning to its natural proportion and complexion.

When these symptoms arise upon a dangerous stage of the disease, the patient invariably recovers; unless he suffer a relapse in his convalescence from mismanagement, which from the great debility necessarily present after immersing from a fever, sometimes proves fatal.

SECT.

SECT. II.

*On the symptoms of the intermittent fever,
as it appeared in Jamaica in 1794.*

THE symptoms of the intermittent fever differ in no respect from the remittent, as it has been described, but in the accession and termination of paroxysms, which are more distinct and clearly marked: the two diseases often have appeared in Jamaica at the same period, and have changed from one form to the other, according to the mode in which they were treated; and during the sickly season of 1794, the intermittent proved equally fatal with the remittent. The type in which the intermittent most frequently appeared was that of tertian, sometimes the double tertian occurred; and I have witnessed the quotidian type, notwithstanding the opinion of some eminent physicians against its existence; the quartan type was a more rare occur-

occurrence, and only appeared in debilitated patients, under the influence of diseased viscera.

Although the endemical intermittent is announced by a shivering fit, as in Europe, yet its severity and duration, are much less; but the hot stage follows as already has been described, and in about twelve, fourteen, or sixteen hours an intermission takes place.

In the first paroxysm during the hot stage, delirium has run high in many cases which occurred in November and December 1794, and the debility which succeeded, sometimes threatened the patient with immediate death.

In many instances, after a fair intermission, where the patient had been well evacuated, and abundance of bark given, a second or third paroxysm would occur, and terminate in the death of the patient: or the disease would rapidly run into the remittent or continued form, producing that train of symptoms which have been pointed out as always proving fatal.

At

At a more healthy season of the year, or in particular constitutions, the intermittent was not of so alarming a tendency; but was either speedily removed by medical treatment, or by its continuance laid the foundation for visceral obstructions: in this case, there was often a combination of other symptoms apparently unconnected with the disease; among the more striking, were to be noticed ophthalmia and dysentery; according to the mode of treatment they changed from the one form to the other, putting on at one time the appearance of fever, at another that of dysentery, and again these would give place to ophthalmia: and in proportion as the obstructions were removed, they all gradually disappeared.

I took much pains to ascertain, how far the phases of the moon influenced fever in this climate; and it was not observable that more cases of fever occurred in any one phase than in any other; but relapses were certainly more frequent, and the symptoms of fever and other acute disease more aggravated

vated at the full and change of the moon, than at any other period; and it was also observable, that these circumstances ceased as the moon quartered.

SECT. III.

Treatment of the remittent and intermittent fever.

PRACTITIONERS have been more unanimous by many degrees, in the treatment of fevers with type, than that of the continued form: they have acted more upon principle, and seem all to agree in the expediency of shortening the duration of paroxysm, and of providing against the renewal of exacerbation; but as they have employed different means towards the attainment of the same end, it must follow that their practice has been attended with various degrees of success; and therefore it must be the business of this chapter, to point out such methods as have been found
most

most effectual ; and also to shew in the application of remedies, the necessity of discriminating one constitution from another, and the symptoms peculiar to such ; for it must appear, from what has been said on the varieties of the remittent, as depending on constitution, “ that the treatment which “ may be proper in one patient, may prove “ the destruction of another :” and hence arises the necessity of considering the treatment of the several varieties of the remittent apart ; and for sake of order, the same arrangement will be observed as in the last chapter.

SECT. IV.

Treatment of the remittent, when acting on the macilent habit with an irritable temperament.

IT is commonly understood, that in the treatment of all fevers, the first point claiming attention, is the state of the primæ viæ.

In this variety of the disease, there seldom appears that obstinate costiveness, or disposition to severe vomiting, which distinguishes the others: in this, the derangement of the stomach seldom amounts to more than nausea, or at most to a slight degree of retching, which may be relieved by a few grains of ipecacuanha; but as gentle laxatives, will answer the same purpose by opening the bowels, they should be preferred to any other kind of evacuation; frequent doses of magnesia washed down by lemonade, or an adequate solution of purging

ing salts, or rhubarb and cremor tartar, or any other medicine of the gently laxative class, that will procure five or six moderate motions, will be sufficient in such cases, but more particularly if preceded by a laxative infection: for it will be found that if active purgatives be employed, and they operate powerfully, a train of distressing, nervous symptoms will be induced, that shall in many instances place the patient in the greatest danger.

During the accession of fever, such remedies as may in other cases be considered secondary means, or auxiliaries, will here serve to amuse the patient, while they relieve particular sensations, and will be found sufficient to produce a good effect on this stage of the disease: among these may be mentioned, frequent pediluvia, effervescent draughts with nitrous æther, a supply of warm diluting liquors, very small doses of James's powder, given at distant periods, an attention to the temperature of the room, and cheering up the patient, by impressing him with an opinion of his perfect safety,

safety, and that his complaint is but a cold, the result of checked perspiration.

As soon as there is an appearance of remission by a small abatement of symptoms, if the stomach be retentive, bark in substance or in strong decoction should be given every other hour alternately with the effervescent draughts; and when the remission becomes more perfect, the bark in substance should be taken every hour, and the saline draughts may be omitted.

During the remission, an attention to nourishment is of the utmost importance; panada, or sago, made palatable with Madeira wine, should be given in small quantities between each dose of the bark, in such manner that the one be not taken too soon after the other.—In many cases, chicken tea may be preferred, which even during the first remission seldom does harm.

To relieve particular nervous symptoms, which frequently occur during the remission, a tea-spoon full of vitriolic æther taken occasionally, will be found useful, and some-

sometimes it may be necessary to give other medicines of the nervous class, such as the foetid tincture with camphorated julep, essence of peppermint, the compound tincture of lavender, or a glass of Madeira wine, all of which may be successfully employed to remove the sense of languor and debility peculiar to this fever.

In general, by this mode of treating the exacerbations and remissions, the disease seldom becomes alarming, or is of long duration; but when the head is more severely affected, and remissions are not so readily procured, more stools may be obtained by enema, and a full dose of laudanum may be given in an effervescent draught, with a small proportion of antimonial wine; these, with the application of a blister between the shoulders, may induce an early remission, and will frequently terminate the disease.

The debility which sometimes succeeds the solution of the fever, is more to be dreaded than the disease in its active state, but more especially when too violent eva-

evacuations have been used ; in such case, the debility becomes so great as to threaten the immediate death of the patient. Now stimulants of all kinds may be employed with very great success ; blistering plasters placed between the shoulders, on the head, on the internal parts of the thighs and arms ; and the most stimulating cataplasms to the soles of the feet, wrists, and ancles may be severally and jointly applied, so as to keep up a regular succession of stimuli during some days, while the Peruvian bark is conveying tone to the system. On the same principle, Madeira wine or even brandy diluted, may be employed with freedom, and capsicum will be found in such cases to be, not an invaluable medicine.

The Peruvian bark should be given in every form that can add to its efficacy, and when the stomach is retentive, a drachm and an half, or two drachms of the powder may be taken every hour, in a strong decoction of the same with snake-root, and bark glysters with a solution of assafoetida should be thrown up as often as they

will be retained : strong chicken broth, sago, gruel, or panada with wine or brandy, should be given in such proportions as the stomach will bear ; and, in fine, every thing that is likely to rouse the powers of life to action, and such as are calculated to give the organs tone, should be persisted in on these pressing occasions, and the practice will be often successful, even when deglutition is the only system of life that appears in the patient.

SECT. V.

On the treatment of the remittent acting on the obese habit and sanguine temperament.

IN this variety of the remittent, which shews itself in the muscular, or full plethoric habit, a mode of treatment very different and nearly opposite to the other must be adopted ; for though there be no marks of inflammation in this disease, yet there evi-

dently is a larger proportion of blood in the abdominal viscera and head, than is natural; but this superabundance is partial.

In such cases, bleeding seems naturally indicated, and indeed in some instances it certainly has proved very useful, either carrying off the disease entirely, or reducing it to a fair intermittent: but as it requires much nicety in discriminating the particular periods and cases in which only it can with safety be adopted, active purging may with more propriety be recommended, as in general it will be found to answer every purpose of the other evacuation. But the simple evacuation of any extraneous matter from the bowels, whether hardened fæces or superabundant bile, does not come up to what must be understood by *active purging*; for it must be so conducted, that a very considerable increase of fluid be derived from the excretories of the intestinal canal, which will relieve the blood vessels much, and tend to prevent congestions.

It

It is astonishing what a number of stools, patients under this variety of the remittent will bear, without much inconvenience, and what great relief accrues: however it is adviseable that the operation of purging in this case be begun by throwing up a laxative injection; and then to regulate the purge so as to open the skin while it operates upon the bowels, taking care, if possible, not to induce vomiting; for this determines the blood to the head, and rather aggravates than relieves the other symptoms. The purge best adapted to the indications pointed out, seems to be that which some experience hath sealed with its authority; and which therefore may be recommended to the inexperienced as a fit model to proceed upon, until their practice may suggest a more expedient medicine: five grains of jalap, three grains of antimonial powder, and two grains of calomel, made into two or three pills, should be given every hour, until many copious alvine discharges have been induced.

If after this effect has been produced, and the head be not considerably relieved, or the symptoms in general do not indicate a disposition in the fever to remit, a blister should be applied between the shoulders, and recourse must be had to the pediluvia, or what may generally be preferred, the semicupium: the jalap may now be omitted in the medicine, which ought to be continued with a view of determining more particularly to the skin, but which will still act sufficiently on the bowels; and it may now with advantage be washed down with effervescent draughts properly proportioned for saturation. In some pressing instances, blisters between the thighs or upon the head may be applied with great success, and the evacuating system be continued, where there are not any dangerous symptoms of debility; the consequence of this mode of treatment in general will be found to be either a solution of the disease, or a complete intermission, or at least such a fair remission of fever as to render the use of bark both safe and effectual: it is
however

however by no means prudent to throw in the bark so early, or in such large quantities, in this variety of the remittent, as in the others; and it may be observed that a much less quantity is found expedient in preventing future returns of fever in this, than in the other varieties.

When this variety terminates in death, the exacerbations of fever are positive and of long duration, and end in a comatose state of the patient, or in outrageous delirium; symptoms evidently denoting congestion in the vessels of the brain, which invariably, under these circumstances, produce convulsions and death.

SECT. VI.

On the treatment of the remittent acting on the mediate habit, rendered irritable by habitual excess.

IN this mixed variety of remittent fever, which is much more prevalent than the others, among soldiers, there is a particular determination of fluids to the abdominal viscera, with an increased secretion of bile.

Bleeding in this disease ever proves hurtful, by increasing the debility which marks the latter stage of this variety of the remittent.

Emetics are of doubtful efficacy; but to soldiers they are particularly hurtful, from the tone of their stomachs being destroyed by the habitual use of spirits, which gives rise to an irritability, that when excited, produces the most distressing and perplexing symptoms.

symptoms. But when the stomach is overcharged with bile, and an emetic is resolved on, a few grains of ipecacuanha will be found sufficient to induce a gentle vomiting, and may under certain circumstances prove serviceable.

But before I dismiss this part of the subject to enter upon the particulars of treatment, it is my duty to give a decided opinion against the indiscriminate use of tartar emetic in the fevers of the West Indies: this is the more requisite, as it is a practice adopted by many practitioners in the island of Jamaica, which would seem to sanction its use; but it must be understood that a practice applicable to negroes and people of color, whose temperaments are not irritable, cannot apply to opposite constitutions; and if the practice of joining this medicine to a purgative, with a view of operating by stool, which is a practice among many, be advantageous, it is when confined to this description of people. The white inhabitant, and more especially the soldier, cannot take so active a medicine without

without the risk of inducing some very alarming symptoms.

In one regiment quartered in Jamaica, it was the practice of the surgeon to give it with a purgative to all the men that came in with fevers; its fatal effects were very striking; it either induced an incapacity of retention in the stomach, or such rapid debility, as in common cases of the remittent, to carry off the patient in three days.

The great object in the first stage of this variety, is the evacuation of the bowels, which should be effected as soon as possible; this may be advantageously brought about, by throwing up an active purging glyster, and giving the jalap, calomel, and antimonial powder every hour, as directed in treating on the last variety of the disease; however where there appears the least danger of exciting the irritability of the stomach, it will be adviseable to omit the antimonial powder, and to continue the other medicines without it; and when symptoms are urgent, the proportions of calomel and
jalap

jalap should be so increased as to be rapid in their effect on the bowels.

Where obstinate costiveness prevails, with tension or pain in the abdomen, fomentations, or the warm bath, should be first adopted, and then succeeded by the glyster and purgative medicine in the manner already mentioned.

Though it be of the utmost importance to the cure of this variety of the disease, that a number of stools be procured in the early part of it, yet it must be remembered, that this does not admit of evacuation being carried to that extent which is found requisite in the second variety ; and nevertheless that it is not prudent to trust to the gentle effects of such laxatives, as are recommended in the first variety of the remittent.

After the operation of the purge, the exacerbation of fever should be treated much after the manner observed in the other varieties, allowing for a difference of circumstances. The warm bath, pediluvia, effervescing draughts, plentiful dilution

dilution and a *guarded* use of antimonials, must be the principal means adopted to bring about a remission: as soon as this be procured, or there is a disposition towards it, the decoction of bark, occasionally with the addition of mindererus spirit, should be given every other hour, alternately with the saline draughts in effervescence, until the patient be in a state to take the bark in substance, when a drachm may be given with propriety every hour if the stomach will bear it; and cases will occur where a drachm and an half or two drachms may be given, and will be retained—in other cases half a drachm, or even a scruple will be found to be the utmost dose the stomach will bear, until it has acquired a little more tone—it is however necessary to guard against debility, or prevent future attacks of fever, to give the bark earlier and in much larger doses than would be thought proper in Europe, or may be necessary in the second variety of this fever.

No inconvenience arises from the early use of bark in this variety, provided the patient

patient has been properly evacuated at the commencement of the disease, and necessary attention be paid to the state of the bowels in its subsequent course.

If after this treatment, the following exacerbation should be long and rapid in succession, or give rise to more urgent symptoms, another purging glyster should be thrown up, and small doses of the purgative medicine may be administered in repeated doses if the patient's strength will bear it; and a blister should be applied between the shoulders, which will seldom fail to bring about a more perfect remission, and not unfrequently an intermission of the fever.

When the case remains obstinate notwithstanding these endeavours, much danger may be apprehended, and more decisive means must be employed. A blister should be put to the head, and on the inside of the thighs, and if the disease threaten to run into the continued form with an increased malignity of its symptoms, the first dawning of remission after this exacerbation should be seized, as an important opportunity

nity of giving *bark* in the most effectual manner; which may be found, in giving the powder in a strong decoction of the quill with snake-root, in as large doses as the stomach will retain; by throwing a strong decoction of the bark intermingled with its powder up the rectum, as frequently as it can be retained long enough to be serviceable. Farinaceous nourishment of different kinds, with Madeira wine, proportioned to the degree of debility and urgency of the other symptoms, should be frequently, though cautiously given, in such proportions as will tend to keep up the strength of the patient, without overloading, and thereby exciting the irritability of his stomach.

In some desperate cases of this variety, which have come under my observation, the cold shower bath, as recommended by an eminent military practitioner in an admirable treatise on the fevers of tropical climates, has been found very useful, and when united to such exertions as have been recommended above, has proved not unfrequently successful; in others, cyder,
bottled

bottled porter, and particularly spruce beer, when eagerly called for by the patients, and retained in large quantity, have added greatly to the success of practice; owing probably to the quantity of carbonaceous acid (commonly called fixed air) which those liquors disengage in a gaseous state.

When this variety of the remittent threatens to terminate in a congestion of some of the principal organs of life, it may be known by the particular affection of the head, in the form of delirium, or coma, by the turgescence of the vessels of the eyes, by the gloominess of the countenance, and by the tension, fulness, and pain which occupies the region of the abdomen; this point being ascertained by attending to these circumstances, calomel should be administered without loss of time in small, but frequent doses, and mercurial frictions should be so employed as to impregnate the system with mercury as soon as possible: this practice does not require, that the tonic plan already recommended be suspended, on the contrary it should be

the

the more persevered in; but it may be prudent to omit the use of acids in drink and medicine.

The good effects of mercury in some desperate cases of this fever have been witnessed by many, and are astonishing; especially where the mouth has quickly owned the presence of its effects: and in all doubtful cases of the remittent fever, where there is not uncommon debility, mercury may safely be recommended; but where the more fatal symptoms combine, little must be expected from it; for under such circumstances, nothing can be done by medicine, at least we are warranted to say, nothing has been done by it as yet; and there seems to be something in the nature of such a case beyond the reach of its efficacy; this consideration should make us the more zealous, while the disease is under our power, that by an assiduous and timely application of remedies, we may prevent the accession of symptoms which by their nature are mortal.

SECT.

SECT. VII.

On the treatment of anomalous symptoms of the remittent.

HAVING pointed out the general mode in which the remittent endemic, under its several varieties should be treated; the subject shall be concluded by considering some particular symptoms of this disease, with the remedies most effective in their removal.

Among the most distressing, the most perplexing, and not the least dangerous of the symptoms, is an irritable stomach in the absence of fever: this often continues for some days or even weeks after all the other symptoms have abated, and by depriving the patient of the nourishment requisite to restore his strength, and at the same time keeping him in a continued state of uneasiness and fatigue, frequently induces death: this state of the stomach is

prevalent among soldiers, arising from the tone being destroyed, or at least greatly impaired by the abuse of spirits: when its cause is not antecedent to the disease, it may be laid to the account of an injudicious use of antimonials in the early stage of it; however in some cases, it fairly may be attributed to the debility accruing from the disease itself.

Remedies of apparently the same force and tendency meet with very different success in different cases when this symptom is required to be removed: and indeed in very many cases every effort is ineffectual.

However, the most successful remedies are, the application of a blister to the region of the stomach; frequent doses of æther, or camphor and opium, washed down with saline draughts in a state of effervescence; bottled fermented liquors, such as spruce beer, porter, and cyder, especially when made warm with brandy given before the gas flies off, which may be accomplished by pouring the cyder upon the brandy and drinking

drinking it off, on the same instant: in some cases, mild bitters, such as an infusion of the Peruvian bark, or of chamomile, or of quaffia, which is still more serviceable, may be found useful; in others, strong cordials, with medicines of the nervous class, particularly assafœtida, when united to a judicious use of brandy, or spiced wine, will be found to answer a good purpose: and again, in some instances, it will be found most expedient to disuse all medicines but bark glysters; and allow nothing more than a very little, light nourishment to be received into the stomach.

There always requires much address in the application of any remedy against this troublesome symptom; the greatest care must be taken to begin with a very small proportion of whatever it may be, gradually increasing it, but not so as to be rejected by the stomach; it is on this account, that they who have the best nurses, most frequently recover; for there is no part of a nurse's duty of so much importance to a

recovering patient, as a judicious mode of administering nourishment.

In the latter stage of the disease, a wakefulness and restlessness, with a muttering kind of delirium; are sometimes found to prevail, without any marked determination of blood to the head; in such cases, a full dose of laudanum may be administered.

Symptoms of great debility, in every variety of the disease, may be advantageously treated, as recommended under the first variety, to which, it is more peculiarly connected.

Profuse diarrhæa sometimes obtains; generally the consequence of weak bowels, but sometimes when attended by other bad symptoms, in the last stage of the disease, it seems to arise from a disposition to putrescency, and then it becomes an alarming symptom. Under the first circumstance, opium, mulled port wine, and medicines of a similar kind may be given with success.

A pain in the right hypochondrium, or in the chest, accompanied by a cough and expect-

expectoration sometimes attends the remittent fever, and usually may be removed by the application of a blister to the part affected.

Where there is a considerable hemorrhage from the nose, or black and bloody eruptions about the mouth, (symptoms of great danger,) lemonade should be given as common drink; and elixir of vitriol in small doses added to the bark, will frequently be found a valuable medicine.

Singultus often marks the last stage of this disease, and though it be a dangerous symptom, yet it may be removed, by the application of a blister to the region of the stomach, and by giving repeated doses of camphor, opium, and assafoetida made up into pills, and washed down with vitriolic æther in spring-water.

Long worms sometimes come away after the solution of fever; but as they are the consequence only of the disease, and do not give rise to any particular symptom, no application of medicine is here requisite. But there is a most dreadful accident to

which patients in the last stage of this fever are exposed; and that is, the generation of maggots in the mouth, gums, and inner membrane of the nose, arising from the *ova* of large blue flies being deposited in these places, which are soon heated into life, and maggots are produced. The flies which produce these *ova*, are constantly observed to be buzzing about patients in the latter stage of this disease; and when the patients sleep, or dose with their mouths open, it is with difficulty the nurses can prevent this mischief. When they acquire life, they burrow in a most alarming manner: the melancholy case of an officer's lady in Jamaica, may be adduced as an example of fatal suffering.

After escaping from the most dangerous symptoms of an alarming fever, these maggots were produced, which burrowed and found their way by the nose, through the *os cribiforme* into the cavity of the cranium, and afterwards into the brain itself; to which she owed her death.

A frequent attention to this circumstance, appears, from what has been said, to be absolutely necessary; and immediately on the discovery of the existence of these grubs, spirit of turpentine, or a solution of corrosive sublimate* should be assiduously applied from a syringe, which may destroy life in them, and thereby put a stop to their progress; which otherwise is so rapid as to take them beyond the reach of any application.

* For the same purpose, the bitumen of coal, I am informed by Dr. Wright, has proved a very successful application.

SECT. VIII.

On the treatment of patients in a state of convalescence from fever.

A STATE of convalescence after this fever, demands particular attention, since where the patient has been much reduced by the disease, any slight irregularity brings on a relapse; which in such cases often proves fatal.

The chief points requiring attention, are the state of the patient's bowels, his diet, his exercise, and change of air. The bowels are to be kept open, and when required for that purpose, laxative injections are to be used. His diet must be simple and nutritive, cautiously avoiding such quantities as may be too much for the present power of the digestive organs; for it very frequently happens that after fevers of this kind, when the appetite begins to
return,

return, it suddenly becomes voracious, and craves more than would be prudent to allow; and indeed, it requires some resolution to restrain the patient from committing abligurtion.

Chicken broth, or milk, fago, or panada, with a little wine in frequent, but small proportions, are the only articles of diet admissible, during the first few days of convalescence: then by degrees as the strength returns, a little animal food may be allowed, beginning with chicken and light fish, which gradually may be changed for more substantial nourishment. However this cannot be too seriously imprest, that it is more safe to err on the side of abstinence than repletion, as relapses more frequently are induced by this, than by any other cause.

A well-regulated exercise, is of the utmost importance to the recovery of the patient; and this is considered so essential in Jamaica, that as soon as the fever completely terminates, without attending to the patient's strength, he is conveyed to a carriage, in which

which he is drove about as long as he can bear it without too much risk of fainting: the effect of this exercise, and the change of air attending it, is always the most salutary, the patient finding himself enlivened and refreshed, and we may add, strengthened: as his strength returns, his exercise is increased, until he is able to ride on horseback, which usually restores to him his accustomed health.

There is however nothing which contributes to the return of health more certainly, than change of air; even the removal of a patient from one house to another, in the same town, is serviceable; but more essentially so, is the removal of the patient to such situations as Jamaica abundantly affords: the gradation of climates in the ascent of its mountains, present situations for the recovery of the sick, in almost every stage of the disease; and there have been instances of persons laboring under a smart fever, being recovered by removal to the mountains during its accession, without any medical interposition.

When

When the patient is too weak, it may not be prudent to carry him at first, to a very cool temperature; but to place him in a lower situation, and gradually to move him upwards, as his strength may permit, which, in general, will return after a short residence in the lower mountains.

But, if after all these endeavours, should the patient continue weakly, and sustain returns of fever, it then becomes absolutely necessary that he try a voyage by sea, visit North America, or return to Europe.

SECT. IX.

On the treatment of the intermittent fever.

INTERMITTENTS, as they occur in tropical countries, may be, and indeed ought to be, treated upon the same principles as the remittent; first by shortening the duration of paroxysms, and again, by preventing their return: and as the train of symptoms are more regular, uniform, and less complicated, the mode of practice may be reduced to greater simplicity, than can apply to the extraordinary symptoms which often appear in the several varieties of the remittent.

The endemic fever of hot countries in the intermitting form, frequently proves as rapid in destroying life, as when it has assumed the remittent type, and therefore as speedy and decisive a mode of practice is required: for there have been instances
where

where the return of paroxysm had been apparently guarded against by throwing in, very large quantities of bark during the fair intermission, and a violent paroxysm succeeded, which terminated in the death of the patient: from this it appears, that the least attack of fever should be considered of sufficient importance to demand immediate attention.

The evacuation of the bowels by laxative glysters, succeeded by active purges are the first remedies indicated in the cure of the disease; and on the accession of the febrile symptoms, medicines of the secondary class may be employed to procure an intermission; but should the paroxysm be of long duration, or attended by aggravating symptoms, a blister should be applied between the shoulders, which seldom will fail in affecting a complete intermission: on which the bark should be administered in as large and frequent doses as the stomach can retain, and nourishment suitable to the strength of the patient, should be judiciously administered, in such proportions, and at such

such periods, as are least likely to interfere with the success of the bark.

The usual mode of giving bark in this disease, is by drachm doses every hour during the intermission ; but in many instances, this proportion will be found insufficient to prevent a return of fever, or to guard against its debilitating consequences : therefore it is adviseable that a drachm and an half, or two drachms, be given in such cases, if the stomach will admit. And it may not be out of place here, to observe, that in one patient which came under my notice, the approaching paroxysm must have ended in his destruction, had it not been prevented by giving half an ounce of powdered bark in equal parts of brandy and wine every half hour until four doses had been taken, after which it was administered in smaller doses, and at more distant periods.

The irritability of stomach which prevails so much among soldiers, often rejects the powder of bark given in the ordinary way ; and as the patient's life depends upon

the taking, and retaining of this medicine, it will be necessary to suggest such means as have been adopted to administer this medicine under so disadvantageous a circumstance.

Sometimes it will be found that the powder will be retained when given in a strong infusion of snake-root or of quassia, for while it adds to the efficacy of the medicine, it proves an expedient vehicle for the bark: where great and general debility prevails, the warmer cordials with assafoetida may be esteemed a useful addition to the bark, but more especially Madeira wine or strong brandy and water: in some instances, it will be more readily retained in porter, or cyder that is brisk: and again, a tea-spoonful of æther, with a few drops of laudanum added to some of the snake-root infusion will answer as a vehicle to the bark when others fail. However, all these means frequently fail, and no alternative offers, but to administer the bark in a secondary way, to attend assiduously to the patient's nourishment, and to use stimulants with freedom,

dom, until the stomach has recovered sufficiently to bear proper tonics.

The mode that is most likely to succeed in such cases, is the application of a blister to the region of the stomach, and the administration of an infusion of bark and snake root alone, or with the addition of extract of bark, (if the state of the stomach be not too irritable,) given in small but frequent doses; bark glysters should be thrown up; and fowl soup or chicken tea, or sago, panada, rich gruel, or the like, should be taken in as large proportions as the stomach will retain without uneasiness; and wine or brandy may be given with freedom. Pills composed of the extract of bark, Cayenne pepper and opium, washed down with an infusion of snake-root, will on some occasions be retained, where every other endeavour fails; and in this case, such tone will be very soon produced in the stomach as to render it equal to receive the bark in powder.

And in some cases, where no medicine whatever can be retained, the patient's life may

may be saved by a judicious management of nourishment and wine.

In cases where the paroxysms and intermissions are distinctly marked, and there does not appear any reason to apprehend an irritable stomach, an emetic given a few hours before the accession of fever, will shorten the paroxysm, and give additional efficacy to the bark.

A full dose of tincture of opium, in the manner recommended by Dr. Lind, (especially when united to a mild antimonial,) taken on the first approach of the rigor, or even at the commencement of the hot fit, seldom will fail in shortening the paroxysm, or in relieving its most urgent symptoms. This mode of treatment should nevertheless be confined to recent intermittents; for where they have been of long standing, or by their repetition had rendered the constitution less susceptible of benefit from the bark, by reason of its long and frequent use; obstructions in the viscera arise, particularly in the liver, which require that the patient be put upon a gentle course of mer-

cury, to be continued until the mouth becomes affected; and it will appear that most cases will yield to this treatment. Indeed I have found it so effectual, that there has not been a necessity to try any other medicine; therefore it may be proper to give a short sketch of the manner in which the remedy was employed in such cases.

A grain of calomel in form of a pill was taken every night for some time, when it was also repeated in the mornings, and continued until a soreness of the gums, or a foetor in the breath, or an increased secretion of saliva was observable: a course of aromatic bitters, as a proper substitute for the bark, was now given in conjunction with the mercury, which, by conveying tone to the stomach, and by rendering the bark less familiar to the habit, rendered it more effectual in securing permanent strength to the patient, when administered during his convalescence.

In such cases, a change of air always becomes requisite to secure the patients against relapse; for even in true intermittents,

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when this event happens, it often will be found to baffle the best medical skill.

In most cases of the recent kind, and in chronic cases also where the viscera are not obstructed, removal from a hot and moist, to a cool and dry situation will in general be found effectual; a course of exercise, especially riding on horseback, and such amusements as afford recreation, contribute much to the recovery of the patient: but all this will not avail, if attention be not paid to regularity in diet, to the keeping good hours, to early rising, and to the avoiding exposure to the sun and night air.

To those who have not resided long in Jamaica, the mountains afford situations adequate to restore health to the convalescent; but to others who have had frequent returns of fever, these situations are not to be relied on, and it becomes necessary, to put the matter beyond risk, that they return to Europe.

CHAP. VIII.

On Dysentery.

SECT. I.

General remarks on the causes of dysentery.

DYSENTERY has been so fully and ably described by many authors, both as it appears in tropical climates, and in Europe, that it becomes unnecessary to treat of it at large; for to enter into particulars would be superfluous: therefore the following remarks shall be confined to its general nature, as it appears in Jamaica and St. Domingo; and such hints as experience has suggested shall be subjoined, to point out a mode of treatment that proves generally successful in cases of dysentery.

This disease is by no means so frequent or fatal among the white inhabitants, or troops at Jamaica, of late years as formerly; yet it often puts on a mortal character
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among the slaves, such as may have been observed among the white people in former years. The present disparity in dysenteric affection may be attributed to the improved mode of dressing among the white inhabitants of the West Indies, which now is well adapted to guard against the sudden transitions of calm and breeze; hence they are so much less liable to suffer from checked perspiration than the negroes, whose cloathing generally consists of an Osnaburg frock and trowsers, which are thin and pervious to the wind; besides when slight fever is induced from this cause, the negro as in all other cases of disease, wraps up his head with the greatest care, but leaves the rest of his body exposed as usual; moreover, negroes are more directly exposed to circumstances, which induce affections of the bowels, than white inhabitants, and thereby are more subject to dysenteric affection on the agency of the remote cause.

Many observations conspire to render it highly probable, that the remote cause of dysentery is essentially the same with that

of fever, differing only in degree or modification. For it appears that tropical dysentery is no other than a milder form of the febrile endemic, which on being aggravated by a further concentration of the remote cause, becomes an intermittent or remittent fever. In support of this opinion it may be remarked, that dysentery seldom appears but in situations where idiopathic fever prevails, and that frequently it changes into that disease; but it is more particularly to our purpose to notice, that during the wet season of the year, and in such situations as are most frequently enveloped in a moist atmosphere, not sufficiently acted upon by the sun to produce fever in a bad form, dysentery is produced, and continues to prevail during the continuance of such circumstances. The vicinity of lagoons, or of rivers whose stream is not rapid, where chilling vapours or fogs arise, are situations very productive of this disease; and it obtains in such situations also, as are situated near to inlets of the sea, which from interfection by mangroves and points of land become in some measure

ture stagnant, and thereby give rise to exhalations sufficiently powerful to produce dysentery. Fort Augusta in Jamaica, and Jeremie in St. Domingo, elucidate these positions; and while dysentery prevails at these places, fever when it appears, assumes the intermittent type, and observes a mild and distinct course.

Spanish Town and Kingston are exempt, in a great measure from this disease, except during the fall of the rains; and on that account its appearance has been attributed to the impurity of the water from the rivers, which on those occasions derive a quantity of filth from the gullies, borne down by the torrent that passes through them, from all quarters of the mountains to the great river. The same cause has been assigned for the appearance of dysentery at Fort Augusta also, because the water which that garrison uses, is brought from the embouchure of the Rio Cobre, which in some cases is rendered brackish by the influx of the sea: but the experimental already noticed in a former part of this work, sufficiently proves the prevalence of dy-

sentery to be independent of the state of the water for when it had been filtrated and otherwise purified previous to use, dysenteric cases continued to occur as frequently as when the troops drank it unfiltrated, and unpurified.

The assertion that bad water is the cause of dysentery, seems to arise from this disease being mistaken for diarrhæa; or from an interruption of the peristaltic motion with a spasmodic affection of the colon and rectum, being confounded with an increased secretion in the intestines, which may be induced by any extraneous matter proper to that effect acting on the intestinal canal; as by an increased excretion of bile from the biliary duct into the intestine, by various medicines taken into the stomach, and in some instances by fruit or bad water. However these may act in producing diarrhæa, they cannot be suspected of impeding the peristaltic motion, and of inducing such a state of the intestinal canal as obtains in dysentery—and consequently the cause of this disease must be found in some other source

source than bad water, or any other of the ingesta: and from what has been said, marsh effluvia, with great propriety, may be considered the remote cause of this disease.

The analogy which marsh miasmata bears to contagions in their operation on the human body, heightens the degree of probability attending the opinion of their efficacy in producing dysentery; which disease, from the same cause, is not infectious; while that arising from contagion is infectious, like the fever which also arises from human contagion.

The predisposing causes to tropical dysentery, are the same with those of the endemic fever; but yet there certainly is an idiosyncrasy, on which this disease more frequently is induced than that of fever; and this state of the constitution seems increased by each succeeding attack of the disease, nay even to be formed in those who have resided some time in the West Indies, free from such disposition in the habit: soldiers who have suffered much

from

from fever, are highly predisposed to the affection of dysentery, which seldom fails to supervene in such cases, and too frequently hastens their death; on such occasions, the disease often assumes a chronic form, which might have been more readily prevented by such means as hereafter shall be recommended, than removed when it occurs, even by the most successful and decisive practice.

The proximate cause of this disease, like that of many others, must yet remain involved in some ambiguity; notwithstanding this, the symptoms will be considered as they are traced in the sketch that is about to be given of tropical dysentery.

SECT.

SECT. II.

On the symptoms and pathology of dysentery.

HAVING made a few cursory remarks on the causes of this disease, it shall be described as it generally appears in Jamaica, and at St. Domingo.

The disease commences with a sudden and severe griping, without any previous rigor or accompanying fever; this pain extends over the whole region of the abdomen, conveying rather the idea of a spasm, than that of inflammation; after a short continuance of pain, many copious stools are induced, which very soon assume a different character, becoming mixed with mucus, and more frequent, but less copious; this state continues and increases, until the exertions of the patient by vast straining, can effect no more than the discharge

charge of a little mucus streaked with blood. These exertions are attended by an obstinate tenesmus, and are followed by an acute pain in the termination of the rectum, which continues a considerable time after each effort; this pain on some occasions is so severe as to induce syncope, from which the patient is roused by a returning desire to go to stool, and an increase of the griping. The pulse, in the early stage of this disease, very rarely differs from that of health, but it becomes more weak, and frequent, as a fatal tendency arises; and as the danger increases, it becomes more tremulous, until at length it intermits, which may be held as the strongest intimation of danger: strength sinks rapidly during the progress of this disease, which appears in the failure of the muscular powers, in the state of the pulse, and in the wan, pallid, sunk countenance, which after a short continuance of the other symptoms supervene.

The disease, as described, if neglected or improperly treated, very soon becomes fatal, or runs into the chronic state; in which

which case in many instances hectic symptoms ensue, that too often terminate in the death of the patient.

It sometimes happens in the course of this disease that the stools are not streaked with blood, or at most only lightly tinged with its coloring matter; and again in some cases the stools continue large as well as frequent; but, generally speaking, the disease follows the course which has been traced, without any considerable variety in its appearance.

The chronic state of dysentery is marked by frequent gripings and a constant desire of going to stool, though not so severe as in the acute stage; the evacuations at one time are more copious and natural, and again they become small, mucous, and streaked with blood; the tenesmus and pain increase in proportion to the smallness and unnatural state of these evacuations. Such are the affections under which soldiers labor, who have been worn down by repeated attacks of fever: and in this state, all patients who have passed through the acute

acute stage continue during a considerable time; at one period holding out hopes of recovery, at another appearing to sink very fast, from which, in some instances, they emerge, after having experienced symptoms that render such an event extremely improbable: however in general this stage of the disease is very perplexing to the practitioner, and often fatal to the patient; and perhaps does not admit of recovery but by means more seasonable and decisive than those which usually are adopted.

Dysentery in tropical climates often is found connected with the endemic remitting and intermitting fevers, in such way that frequent transmutation takes place, so that now the disease wears the form of dysentery, again it wears that of fever; this mutability seems influenced by the constitution of the atmosphere or the mode of treating the disease; if a patient under such circumstances be not too much reduced, the disease easily gives way to proper treatment such as the symptoms will suggest; and in few instances will prove fatal.

Anatomical

Anatomical observations inform us, that in chronic dysentery the lymphatic glands of the mesentery usually are enlarged and obstructed, the coat of the intestine abraded, ulcerated, and often gangrenous; the spleen enlarged and schirrhous, and the liver very frequently is found in the same state. That an affection of the liver in many cases predisposes to dysentery, or tends to form that idiosyncrasy favorable to its admission, seems probable in a high degree; since an obstructed liver generally prevails more or less in such patients as become affected with chronic dysentery.

From these observations it appears that the bile not being secreted in its usual quantity, and perhaps with less active properties, deprives the intestines of their natural stimulus, and thereby admits an interruption, or at least a very languid performance of the peristaltic motion, which not having power to expel the excrementitious matter, allows it to lodge in the large intestines. That some obstruction to the natural course of the bile does take place in this disease,

is evident from the deficiency of that fluid in the stools of patients laboring under genuine dysentery; during several days or even weeks nothing is passed but mucous matter, tinged with blood; what becomes of the bile in this case? If it was secreted it either must pass off, or be absorbed; we see that it does not pass off; and if it was absorbed it naturally must produce jaundice, which is by no means an essential symptom in this disease, nay, it is a rare occurrence, and probably never obtains in genuine dysentery.

As it has appeared that the remote cause of tropical dysentery and the endemic fever of the West Indies are one and the same in kind, differing in degree only; the suggestions which have been offered may lead us to trace its effects on the animal œconomy, and thereby perceive in what manner it produces dysentery.

To produce spasm in the animal machine seems to belong in an eminent degree to marsh miasma, as an efficient; but it does not appear that this cause always possesses

lesses the same force, or that it can act with equal power under all circumstances; however it is sufficiently certain that it does act, and that by its agency a certain train of diseases are produced, which are distinguished from each other by reason of the difference in local affection, and of the degrees of affection under which the same organs in different cases are found to labor.

From the sketch we have made of this disease, it appears that the remote cause, which by its nature induces spasm, is so modified as not to affect the whole system, or such parts of it as are necessary to the production of fever, but that it acts more particularly on the intestinal canal, and that the state of the liver alluded to, was gradually produced by its influence on the vascular system of that organ; the immediate consequence of such an affection, is a constricted state of the intestines, and a diminished secretion of bile, whereby the peristaltic motion is lessened from the absence of its proper stimulus, which admits

the spasm to act with more efficacy: hence feces are not evacuated until they have accumulated in the large intestines, when sometimes it happens from their action as extraneous matter they stimulate the intestine so as to produce a few copious evacuations; but some of the feces yet remain pressed by the spasm on the cells of colon into scybala, which now irritating that part of the intestine, produce an irregular exertion to evacuate its contents, which is counteracted by the spasm that renders these exertions of no effect; hence griping and tenesmus are induced, and dysentery is formed.

In chronic cases, the vessels of the liver, from continuance in a state of inaction, gradually lose their functions, which ultimately become destroyed; the process of chylification consequently is impeded, and marasmus supervenes, from the body losing its accustomed nutriment; the lymphatics from want of dilatation become impervious, and the mesenteric glands thereby grow schirrous; from the connection of the circulation

tion of the blood in the abdominal viscera, the spleen, and other organs become diseased; and the large intestines, from their action on the scybala, become ulcerated and abraded.

These remarks are not insisted on as the true pathology of tropical dysentery; but as they seem to accord with faithful observations, and physiology, it is presumed they come as near the truth as our limited knowledge of final causes will admit: and perhaps what has been suggested may not be unworthy the consideration of the physiologist, whose investigation may place the subject in a clearer point of view, and probably shew us on what account mercury proves so very successful in removing this disease. It would be foreign to the nature of this work to pursue pathological considerations, as in a systematic treatise; yet it requires that such remarks be made as necessarily arise in considering the treatment; and which must serve as the indication to cure.

SECT. III.

On the treatment of acute dysentery.

THE griping and frequent inclination to go to stool evidently arise from hardened feces lodged in the upper part of the large intestines; therefore to remove these becomes the first object in the indication of cure; and in order to effect this purpose, it is requisite we consider the spasmodic affection of the bowels, and the disordered state of the stomach, that often accompany the accession of dysentery, both of which militate against the end in view.

To obviate these difficulties, an emetic, the warm bath, an emollient injection, which acts as an internal fomentation, and a blister to the abdomen, should be used as a necessary preparative to a purge, in the more violent cases of dysentery: but as emetics must be used with caution among soldiers in hot countries, ipecacuanha should

be

be preferred, when such an evacuation becomes necessary. The warm bath, or frequent fomentations to the abdomen, are always safe and useful in the first stage of dysentery; by these remedies, the violence of the spasm, is appeased and the circulation becomes more expanded and enlarged.

But it more frequently happens, that these preliminaries to the administration of a purge are unnecessary, and in general it will be found that a purge immediately given and properly persisted in, will answer every purpose, by effecting a cure: a proper choice of the medicine to be employed may be of some consequence, and therefore should be that which is best adapted to the constitution of the patient, or the urgency of the symptoms.

During this stage of the disease, the patient must be confined to diluting drinks, such as rice or barley water, mint, balm, or common tea, or at most rice gruel; and even sago, or other farinaceous food, must not be allowed during the first four or five days.

In weakly habits, calomel combined with rhubarb, will be found a proper purgative; in others, whose stomachs do not seem affected with nausea, small, but repeated doses of the common purging salts, dissolved in an infusion of quassia, may prove useful and sufficient; but in many, it will be found requisite, nay absolutely necessary, to give the most active purgatives; and in such cases, a combination of calomel, jalap, and aromatic powder, forms a very valuable composition.

The erroneous mode of treating acute dysentery, which many practitioners have adopted, seems to have arisen from apprehensions of carrying the purging system too far, and thereby greatly to increase the debility; and from an opinion that the violent spasm obtaining in this disease, must be increased by such treatment: not considering, that although scybala in the colon, be not the original cause of dysentery, yet being once formed, by the spasm on the cells of that intestine, they become principal agents in the succeeding symptoms,

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and eminently contribute to increase the very cause which formed them; therefore, although spasm originally, and in the first instance, was the cause of scybala, yet now the scybala to a certain degree, become the source of spasm: and on this very account it is requisite that they be removed, before any other steps can be taken towards the cure of the disease. But those who think otherwise, or who have not apprehended the causes of dysentery in a true and enlarged point of view, administer opium with an intention of destroying the spasmodic affection on the bowels, which certainly becomes suspended for a certain time, during the influence of that medicine; but at the same time, the action of the intestines continues suspended, and the scybala remain; whereby the spasm is excited on the cessation of the narcotic power, and the disease continues with its full force, while the energy of the system is wasted by the operation of additional, and ill-timed stimuli: whereas those who have tried repeated purging in the first stage of this

disease, must have found that so far from debility being induced by the practice, it was prevented; for no purging in this complaint, be it ever so severe, can reduce the patient, equal to those violent pains, and frequent but useless efforts, which the lodgement of scybala invariably produces.

From what has been said, it appears that purging, in the first stage of dysentery, cannot be too highly recommended, or too strongly enjoined: indeed, from experience I can advise, that it be used and duly persisted in, day after day, until the griping be removed; and if the milder medicines prove unequal to the purpose, no hesitation should be observed in making use of the more active remedies of that class; for I can assert with truth, that I never lost a patient labouring under dysentery in the West Indies, when I saw him in the first stage of the disease; and I am convinced, the cases of acute dysentery are few, that cannot be removed by the proposed treatment.

When the purging system is employed, so as completely to remove the griping;
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and natural stools ensue, properly colored with bilious matter, the subsequent treatment becomes easy and simple; nay indeed it rests chiefly on a proper attention to the patient's diet, which should consist of farinaceous food, carefully avoiding even animal broths until the bowels recover their natural tone: opium in most cases is unnecessary; in others, where the tone of the bowels has been much impaired, and the bile flows freely, it may be given with safety, and will be useful; sometimes it may be requisite to combine it with ipecacuanha, but in general, when it is necessary, it may be administered alone.

S E C T. IV.

On the treatment of chronic dysentery.

SHOULD the griping cease from the administration of purgatives, and the desire to go to stool become less frequent, it may be presumed that the scybala are removed; and if under these circumstances, the stools still continue mucous and small, it may be suspected there is a disposition towards chronic dysentery; to remove which a flannel waistcoat should be worn next the skin, and one grain of calomel and three of ipecacuanha may be given two or three times a-day. In general, a few days' use of this medicine, will have relieved the small vessels of the abdominal viscera, by determining the circulation more to the surface, and by giving them energy to perform their proper functions whether as excretories, or glandular papillæ: from this operation on the animal economy, the intestinal

testinal canal will receive its proper juices, and thereby natural stools will be effected. But should the disease continue obstinate, and the chronic form take place, it will be found very perplexing, and most frequently to baffle medical endeavours; for here some derangement must have become fixed, and probably unalterable.

In the acute stage of this disease, none of the abdominal viscera, generally speaking, had acquired much injury, and to guard against such an effect, the practice was easy, and already indicated by the symptoms: but in the chronic form, even conjecture cannot satisfactorily point out whence the mischief may arise; it may be the effect of inflammation, ulceration, or a gangrenous state of the bowels; it may be the consequence of an obstructed liver, or a diseased state of the abdominal excretories in general; and in some instances, it may depend on an atonic state of the intestinal canal, induced by the first stage of the disease. In severe cases, of short duration, where the scybala has been allowed to lodge, the first effect alluded to, may be the cause of
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the protracted state of the disease; in such cases as are of very long continuance, it may readily be believed that an obstructed liver prevails; and where marasmus ensues, the state of the lymphatics becomes evident; where the dysentery is colliquative, it may depend on the debilitated state of the intestinal canal, and the reduced energy of the system in general.

But as the first and last of these occurrences arise in some measure from errors in treatment, it may be presumed they more rarely happen; and therefore we shall consider the cure of chronic dysentery as depending on vascular obstruction; and merely subjoin a few observations on such measures as may be requisite, to remove those states of the disease which more easily had been obviated.

The relief afforded by the *occasional* use of laxatives in the chronic, as well as in the acute stage of this disease, proves the strongest argument for the recommendation of purges in this stage of dysentery: rhubarb either combined with calomel, or alone, or given in an aromatic draught,
proves

proves a valuable medicine; however sometimes the *oleum palmæ christæ*, taken in small quantities, affords more relief; and again, where acidity prevails in the *primæ viæ*, which is not unfrequent, *magnesia* becomes a necessary addition to *rhubarb*, and forms an useful remedy. But all these matters must be regulated by the practitioner, according to the nature of the case, the constitution of the patient, and many anomalous symptoms which may require his consideration: still two or three natural motions must be procured every day, and provided the medicine does not purge to a greater extent, it becomes of no consequence what cathartic is employed.

Mercury is pointed out as the proper remedy, in considering on what this stage of the disease depends; and as I have found calomel as successful, as the nature of such a state may admit from the use of any medicine, I do not hesitate in recommending it; but it will be necessary that it be given gradually, and in small doses, so that it may
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get into the system without increasing the debility, attendant on dysentery in tropical climates: therefore it will be prudent to begin with half a grain only, given every night, and if nothing forbids, the dose may be increased to a grain at the expiration of a week. Sometimes the operation of this medicine will exclude the necessity of giving purgatives, and in a few instances it will be requisite to combine opium with it. There are few other occasions in the treatment of dysentery, wherein opium is useful; for in general it will be observed, that calomel is more effectual in relieving griping, and in procuring good nights, than opium in any form. The alterative should be continued, and in an increased dose if necessary, until a state of convalescence is induced, or until ptyalism begins to supervene; even under this last circumstance, the disease generally takes a favorable turn, if it had not advanced too far before the administration of mercury.

During this treatment, attention to diet, dress, and air, as far as circumstances can permit,

permit, should not be neglected, or held light in hospital arrangements, for dysenteric patients in tropical climates: animal food, spirits, malt liquor, and even wine in moderate quantity must be withheld. Farinaceous nutriment, which contains much vegetable gluten; such as sago, Indian arrow-root*, flour pap, and rice, is the most proper, and barley water may be esteemed the most suitable drink, having occasionally a little cinnamon thrown into it when boiling. Succulent vegetables are nearly as hurtful as animal food in this disease, and therefore should not be allowed. Every dysenteric patient should wear a flannel waistcoat, and otherwise be well cloathed; his atmosphere

* This root, whose plant grows in great abundance in Jamaica, forms a very useful article in the dietetic treatment of diarrhœa, or dysentery; or to patients in a state of convalescence, who cannot digest more substantial nourishment. Its virtues seem to consist in its light, mucilaginous, very nutritive, and gently-astringent qualities; by which it easily is retained on the weakest stomach; and taken in the form of jelly, with wine, rose water, or with milk, it often induces patients to take this, when they previously had rejected every other kind of nourishment.

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should be as much ventilated as possible; but the aspect of his ward should not be towards that quarter whence the land-wind blows, which always is moist and chilling; the driest ward should be appropriated to patients under this disease, and it should be kept clean by brushing only.

Under such circumstances, calomel succeeds so frequently, and in such bad cases, that unless where an ulcerated, or gangrenous state of the intestine has taken place, or the disease has already become colliquative from debility, I am decidedly of opinion there are few cases of dysentery, that will not give way to a prudent, and judicious use of this medicine. It now becomes me to acknowledge, that my idea of adopting mercury in the cure of this disease, originated from the perusal of Dr. Clark's treatise on the diseases of East India voyages, wherein he furnishes us with many judicious remarks on dysentery.

Where the protraction of the disease after the acute stage, seems to depend upon an ulcerated, or gangrenous state of the bowels;

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it has arisen from inflammation, induced on the colon by the action of that intestine upon scybala, which have been allowed to remain, either from the untimely use of opium, or the neglect of purgatives. The presence of this state may be known, by a sudden change in the pulse, and an unaccountable abatement of pain. Even in this case, the first object is to remove the scybala; which will be best effected, by small doses of the oleum palmæ christæ rubbed down with mucilage of gum arabic and water, to which now, small proportions of laudanum may be added with advantage; glysters made with a decoction of chamomile in barley water, to which a sufficient quantity of the same oil as recommended above, must be added, and thrown up at the temperature of blood heat: this operation, repeated every half hour, together with the medicine taken internally, most probably may produce the desired effect within an eligible space of time; for in this case, loss of time is loss of life. However should nothing be effected in three hours, recourse must be had to other means, for bark must

be got into the system; and it is only to be deplored that we have not put the intestinal canal into the best state to profit by its use. Calomel now should be given by the half grain every two hours, and bark must be administered every half hour or oftener, either in decoction or infusion, in such proportions as the stomach of the patient will admit; a laxative glyster, such as has been recommended, should be thrown up every four hours, and on every intermediate hour, a decoction of bark and chamomile, with an under dose of laudanum should be injected. If bark was given without the aid of calomel in this case, and obstructions of the lymphatics prevailed, it would be administered to no purpose; and as this preparation of mercury serves to remove the fecyala if they remain, as well as to excite the system which becomes so necessary in the cure of local debility induced by inflammation, whether it be ulceration or a gangrenous affection; we do not hesitate in recommending it as an indispensable addition

tion to the bark in this state of chronic dysentery.

Where the case becomes desperate, and little hopes are entertained, the constant use of opium cannot be dispensed with; since it is the only means of alleviating the sufferings of the patient, in the pangs of death.

When a colliquative state of the bowels supervenes acute dysentery, in general it arises from exhaustion of the nervous energy, occasioned by the continual griping and straining, induced by scybala remaining in the colon. At first sight it may appear strange, that the same cause should produce two effects so widely different; but when the diathesis of different constitutions is considered, the fact will explain itself; and it will be seen, that while the former affection takes place among the stronger patients, this state of the bowels will obtain among the more weakly. In this form of the disease, where the spasm has ceased, and consequently the scybala have passed off, debility is the chief symptom to contend with, and more particularly as it affects the intestinal

canal. Starch glysters with opium, may here be used with advantage, and the compound powder of ipecacuanha with the chalk julep, become very serviceable: and it may be remarked, that in all other states of dysentery where an absorbent is indicated, magnesia will be found preferable, as it does not possess the property which renders creta so useful in diarrhoea; on which account creta is preferred in the case under consideration. An infusion of Angustura bark also may be employed with success, if administered with proper caution, and Port wine may be given in the sago, or whatever other glutinous vegetable matter be taken by the patient.

Great assiduity must be observed in the application of medicine and nutriment, and even then, in many instances, the patient will sink gradually into death.

The observations which have been made on these two last states of the disease, place the necessity of purging, in the strongest point of view, by shewing the misery which a contrary practice entails upon patients

who had not thus suffered, if purging assiduously had been employed.

A few cursory remarks on some particular remedies may be necessary, before we take leave of this chapter, and perhaps there may be some general remarks requisite, which could not find a place under any of the particular heads lately considered.

The use of opium in dysentery, so as to be rendered safe and serviceable, requires much prudence, and address. In the acute stage, it is very seldom necessary or even admissible; and in the chronic form, it must not be indiscriminately prescribed. It will be found to produce the best effect where there is much griping; but even then, it should not be given without a previous laxative, or mischief will follow. Where there is a prospect of the patient's recovery, and calomel is the medicine employed for that effect, the practitioner must be the proper judge whether the addition of opium be requisite; and it may here be remarked, that when given in conjunction with calomel, it seldom is productive of the inconvenience

venience which follows the administration of it alone.

In some particular instances, where the patient is exhausted for want of rest, or where the principal symptoms arise from weak bowels, a full dose of opium combined with ipecacuanha, becomes necessary; but should griping afterwards return, a laxative must be employed; as there is no stage of this disease where natural evacuations can be dispensed with.

There are many remedies in common use for the cure of dysentery, such as starch glysters, compound powder of ipecacuanha, chalk julep, emulcent drinks, Angustura bark, and many astringent and absorbent medicines.

From the indiscriminate, or untimely use of such remedies they may be said, not to be remedies at all; for they certainly are not calculated to remove dysentery; though each of them may have their separate uses in particular states, symptoms, or circumstances that may arise in such varieties of the disease, as have been induced

induced by improper treatment, or other peculiarities.—How far they are applicable to cases arising out of dysentery, has been pointed out as far as the nature of general considerations will admit; and it is presumed that it will appear from what has been said, that such medicines cannot be esteemed as applicable to the removal of the cause of chronic dysentery.

In all cases of this disease, where bark is admissible, it should be given, as being well adapted to improve the strength and appetite of the patient; but it will be found in general, that every preparation but the infusion disagrees with the patient: however there are particular states and modifications of the disease which require a more ample administration of this medicine; some already have been noticed; and, it now may be proper to observe, that where this disease runs into the intermittent or remittent form of fever, a proper use of bark with opium, seldom fails in removing the disease, especially when preceded by a purge: an

infusion of bark, chamomile, and columba, or what is more successful, of bark, chamomile, and ipecacuanha, may each in their turn be employed in such cases with great advantage.

Confinement to the bed, and a free circulation of air in the apartment, without exposing the patient to an immediate current of wind, are circumstances of importance, which require attention in treating dysentery. A recumbent posture, while it prevents the bowels from being disturbed by exercise, encourages a determination to the skin, which if checked, brings on a return of worse symptoms. Flannel as before recommended, upon this principle, should be worn from the first attack of the disease, even until the patient has emerged from convalescence; and then it may be changed for calico, without which, or flannel next the skin, no person should expose themselves to a current of wind in hot countries.

In all diseases, a well-ventilated apartment is an object of the first importance; but

but it becomes more particularly so in dysentery, which necessarily gives rise to circumstances that impregnate the atmosphere with offensive effluvia; hence too much care cannot be taken, to render the circulation of air uninterrupted and complete.

An attention to diet in the convalescent state of this disease, is of as much importance as at any other period; for there is no point in which patients are so liable to err, or practitioners to be baffled, as in the management of a convalescent's diet. The appetite often becomes much greater than the force of the digestive powers, which requires that the inordinate craving of the patient be denied; else a disordered state of the digestive organs must ensue, and a relapse be the probable consequence. Therefore it is more prudent to be too abstemious than to be guilty of excess in diet, either during the continuance, or some time after the removal of the disease: sago, rice, milk, the jelly of indian-arrow-root, and
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towards recovery from convalescence, a soft-boiled egg, and chicken-broth may be allowed.

However in general these remarks may apply, much must still be left to the discretion and discernment of the practitioner, by whose judgment remedies and diet must be so chosen and modulated, as to apply to every variety of circumstance and constitution.

CHAP. IX.

On the chronic diseases of the army in Jamaica.

THE number of soldiers in Jamaica, and in the other islands between the tropics, who are rendered useless to the service by chronic diseases, is an evil of the greatest moment, and which claims much more attention from every department of the service, than hitherto it has received. Though acute diseases, from the rapid manner in which many of the men are carried off for some time subsequent to the arrival of a regiment in the West Indies, convey to the mind, (at the moment,) the most impressive idea of mortality; yet it will be found, that ultimately, the former prove the most destructive to the existence of an army; since they frequently extend to nearly the whole regiment, and, in the event

event of emergencies, render it almost impracticable to establish a corps, that will be calculated to answer any useful purposes upon active service.

Evidently there are various causes to be assigned for the frequency of chronic complaints among the troops, such as constitutions originally bad, intemperance, and frequent attacks of acute disease; but the climate is the great source whence such calamities spring, and while the system of stationing the troops in the towns and on the sea-coast is continued, it will be in vain to look for a regiment, that from the health and vigor of its men, may be expected to perform that service in the field, which on particular occasions may be of the utmost importance.

It is well understood, that chronic diseases arise from some defect in the vessels of those parts where the circulation naturally is the most languid; and as this is influenced by the action of the heart and arteries, it is evident that such means as are

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of a relaxing tendency, and which diminish the tone of the arteries, necessarily must extend their influence to the venous and secretory system, and in the course of time give rise to a languid circulation, and ultimately to a total obstruction of their vessels. A venous plethora therefore is induced, which either produces a slow inflammation, and its consequences, or from the vessels not experiencing the usual dilatation becoming impervious, a schirrous state of the part. From their structure, the liver, and the other abdominal viscera are more exposed to affections of this kind, than any other part of the body; and therefore it is upon these organs, where such diseases most frequently are to be observed. These affections therefore are occasioned in the first instance, by debility of the whole system, originating from relaxation induced by a hot climate, and increased by intemperance, and frequent attacks of acute disease. That intemperance or acute disease are not the only causes
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of chronic disease in a tropical climate, is proved in people who have lived the most regular lives, and who previously have enjoyed a good state of health; yet after a certain residence in the island, have been affected with an obstructed liver; and there are few who reside long in the towns, or on the sea-coast, who are not subject to a similar complaint, though it often appears in a form unsuspected, until it is detected by a recourse to those remedies, which are most suitable to the cure of obstructed liver.

Dyspepsia, which is an universal disease among the inhabitants of the towns, though from some similarity of symptoms, it is often confounded with a bilious affection, is the first mark of debility which takes place in the system, where there has been no previous indisposition. That in persons newly arrived, or even in others of particular constitutions, an increased secretion of bile is produced, and by its regurgitation in the stomach, or superfluity
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in the bowels, gives rise to some distressing symptoms, is a fact that cannot easily be confuted; but that this happens by no means so often as suspected, and that the symptoms attributed to that cause, originate more frequently from a deficiency in the secretion of bile, is a matter in which I am convinced I shall be supported by all practitioners of experience, who have practised long in a tropical climate. The symptoms, and the remedies which are calculated to remove dyspepsia, are too well understood to render it necessary to notice them here; it will be sufficient to mention, that this disease appears in a much more aggravated form, and are removed with far greater difficulty in a tropical, than in an European climate.

The disease which comes next in point of importance, and which very often occasions dyspepsia, is such a debilitated state of the venous system of the liver, as partially to interrupt the secretion of bile, without inducing an inflammation, or considerable

fidetable obstruction of that organ. This is ascertained by the failure of such remedies which usually relieve dyspepsia, unaccompanied with any pain, hardness, or even fulness in the region of the liver. In such cases, the patient, though his appetite may not have totally failed, falls away, becomes pallid, languid, inactive, and loses his strength. In this complaint, the mind appears particularly to be affected, and though previously it might have been active and firm, yet now it becomes indifferent, timid, and trifling. The dyspeptic symptoms are increased to a degree that renders the life of the patient miserable, and the food, whether animal or vegetable, is converted into the most corrosive acid, which shortly is returned by frequent eructations, or severe fits of vomiting. If this disease be not removed by the most decisive means, or if the patient does not change the climate, it terminates in obstructed viscera, and dropsy.

Previously it has been observed, that active inflammation, that is, inflammation
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of the arterial system of the liver, is not so frequent in Jamaica, as the slow kind, or inflammation of the venous system; and that the latter more or less is connected with most of the complaints to which the residents of that island are subject. This disease, when it is discriminated, is known by the following symptoms. The patient complains frequently at different periods, of a pain in the right hypochondrium, and sometimes about the ensiform cartilage, which often extends to the scapula; though the latter sensation is not an essential circumstance, to constitute the disease. This pain by no means is acute, and frequently is attributed to rheumatism or flatulency; the latter of which always accompanies the disease, and often proves very distressing to the patient. At this period, there is no fever, or alteration in the pulse; and these symptoms may continue for weeks, and sometimes months, before the patient, or even his physician, suspects the real cause. As the disease advances, the symptoms occur more frequently, and give rise to

others, which bear a strong resemblance to dyspepsia, or to a nervous affection. The countenance now assumes a dead, pallid appearance; the tunica albuginea becomes of a pearly white; the spirits are depressed; and the patient upon retiring to rest, complains of a sense of fulness, with such an oppression in his breathing, as to oblige him to sit up in his bed; and from which he is not relieved, until after he has effected a very considerable expulsion of wind. In this stage of the disease, upon examination, a fulness, not amounting to a tumor, may be observed in the region of the liver, which as the disease advances, increases, until it becomes very conspicuous. The state of the pulse, and the other symptoms, still are not of a nature to indicate either fever, or inflammation; and until circumstances arise, which evidently point out the danger of the patient, the cause of the symptoms is still attributed to dyspepsia, or to an affection of the nervous system. If not removed by a course of laxative medicines, an obstinate costiveness constantly accompanies this disease,

ease, and the stools evidently indicate some deficiency in the secretion of bile. A small, hectic cough, such as usually is attributed to a nervous cause; a sudden apprehension or dread, followed by the sensation of fainting, a coldness of the extremities, a palpitation of the heart, and by a spasmodic catching in respiration; frequently occurs during the day, but more particularly on retiring to rest; and which are to be relieved for a short period, by the escape of wind. Flatulency indeed is so prevailing a symptom, that every article received by the stomach, although it relieves for the moment the other symptoms, occasions a sense of fulness of that organ. In this manner, the disease proceeds until it terminates in an abscess, and the death of the patient; or what more frequently occurs, in a scirrhus state of the liver, which brings on dropsy, that always proves fatal.

This affection of the liver evidently is confined to the venous system of that organ, by which the secretion of bile is impeded; but as in some cases, it is accom-

panied with an universal jaundice, it seems more probable, that in such instances, the excretories of the pori biliarii were diseased, and that the termination into the duct was the seat of the disease, by which, the secreted bile was prevented from passing into the intestines, and therefore was absorbed, and carried into the system. There however are many affections of the liver, where the symptoms are not so clearly marked, and which only can be discriminated, by the other diseases to which they give rise, not being removed by the usual mode of treatment, and being cured by such remedies only, as are principally adapted to diseases of the liver. Among these may more particularly be mentioned, intermittent fevers, dysentery, and dyspepsia; a remark which already has been made when treating on those diseases.

The other viscera of the abdomen in general, are subject to obstruction terminating in a schirrous state, which if it does not induce fatal intermitting fevers, or dysentery, usually ends in dropsy, and in that way carries

carries off the patient. The spleen however frequently is enlarged and scirrhous, without in itself producing such serious consequences: such was the case in many instances among the soldiers, who for a considerable time have labored under a disease of that viscus, without any material injury to their health.

Chronic dysentery, which belongs to this class of diseases, having been fully treated in the preceding chapter, I shall now confine my remarks to the most probable means of preventing, or removing obstructed viscera.

On all occasions, but more particularly in tropical climates, it becomes much easier to prevent, than to cure obstructed viscera. A well-regulated exercise, of a nature that will act more directly on the abdominal viscera, without occasioning great fatigue, or exposure to the sun, and an uniform course of temperance, ought to be the first objects of consideration; and are circumstances which cannot be dispensed

with, to prevent the occurrence of such affections in a warm climate. Riding an hard trotting horse every morning for an hour or two, before the sun becomes too powerful, probably will answer the purpose of exercise best; and this is the more requisite, since health cannot be enjoyed long on the plains and sea-coast of Jamaica, without having recourse to such exercise.

The variety of dishes, and liquors usually introduced on most West India tables, and the freedom with which they are used, embarrass and destroy the digestive powers, and have a great tendency to the production of visceral obstruction; while among soldiers, and the lower order of white inhabitants, the abuse of the worst description of spirits, combined with frequent exposure to the sun, are still more powerful causes of this disease. It is hardly necessary to observe, that imprudences never can be long continued in a tropical climate; and to guard against them, becomes an object of the utmost importance to those, who are desirous

desirous of avoiding diseases of so fatal a tendency.

Patients who have experienced frequent attacks of fever, if possible, should retire immediately to the mountains, where they should remain until their strength perfectly is restored; or if that effect be not produced, they should immediately change the climate. It will be in vain for them to expect to enjoy health in the plains, or on the sea-coast, until such a disposition to fever is removed; and in not availing themselves of a favorable opportunity of improving their health, probably is only postponing the trial to a more precarious period, when their viscera may be so diseased, as to convert their removal into a doubtful remedy.

In the treatment of the venous inflammation of the liver, and the obstructed viscera, the same remedy is indicated. Mercury is the only medicine which is entitled to be considered successful in such diseases, and in many instances, it certainly

has been employed to very great advantage. It proves most serviceable, when introduced very gradually into the habit, so as constantly, and uniformly to stimulate the glandular system, until the strength of the patient is restored. Blisters to the parts affected, attention to the state of the bowels, and a course of tonic medicines, accelerate the cure; and exercise, a change to a cooler atmosphere, and a well-regulated diet, are the best securities against a return of the complaint. There however are no means which accomplish the last object so effectually, as a sea-voyage, and the visiting a northern climate; and I earnestly would recommend all those who labour under an affection of the liver, or of obstructed viscera, and whose circumstances will admit of such a measure, to visit as early as possible America, or return to Europe.

I submit the situation of soldiers labouring under chronic diseases in a tropical climate, to the most serious attention of government. On the score of policy and

economy,

oeconomy, which considerably is involved in the loss of so many valuable men, this circumstance becomes an object of great national importance; and therefore I consider it my duty to mention, that numbers annually are lost, from not adopting those means by which they might be saved; and that it is more to the interest of the service, for regiments in the West Indies to have a few effective men, than to be encumbered with a full corps of invalids, or of debilitated soldiers.

The plan I have to recommend embraces three objects. The first, is to prevent the accession of such diseases, by stationing the troops in the most healthy situation in the mountains; the second, to employ the most effectual means that can be adopted in a tropical climate, to remove those diseases when they occur; the third, to have in readiness, frequent conveyances to forward to Europe, such of the sick, whose cures may require, and only can be accomplished by a change of climate.

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The necessity of the first measure proposed, so frequently has been pointed out, and urged in the course of these observations, that it is to be hoped, its utility is sufficiently established. For the removal of chronic diseases that are only forming, the island of Jamaica presents numerous situations contiguous to all the military quarters, where convalescent hospitals might be established, which, under proper regulations, would answer very useful purposes, and which often would prevent the necessity of sending invalids or convalescents to Europe. It is in the mountains, where health is most likely to be restored in Jamaica; but unless the convalescent hospitals are placed in situations, that will admit of the sick being removed without too much fatigue, and without being exposed to the sun, or during the seasons, to the rain; and unless the most rigid discipline among the sick be observed, and great attention paid to the prevention of irregularities, to a judicious distribution of diet, to a proper course of exercise, and to such innocent recreations,

as will tend to amuse the mind, and divert the attention of the sick from the danger of their situation; the object will be defeated, much useless expence incurred, and the troops deprived of that benefit, which certainly would be produced by such an arrangement.

The salutary effects of a sea-voyage, in the restoration of health, are sensibly felt in every country, and in every climate; but perhaps they are in no part of the world more conspicuous than between the tropics; where a cruize at sea for a few days only, often has effected a change, which in the most healthy situations on shore, and under the most skilful medical attendance, would have required some weeks to accomplish. If therefore a few healthy vessels of a strength sufficient to resist, in time of war, the attacks of privateers, be employed for the service of Jamaica, to convey stores and provisions to the different out-ports along the south and north coasts of the island, and to afford such convalescents a cruize, whose cases may require such a measure,

measure, I am convinced a great many lives will be saved, and the expence defrayed, by rendering a supply of recruits less necessary *. Such a vessel should be under regulations suitable to the situation of the sick; and as there always are officers whose health may be benefited by a cruize, it should be placed under the direction of one commissioned, and as many non-commissioned officers as may be requisite to preserve good order among the men. Medical aid of course must accompany the sick, and such a supply of medicines and comforts be embarked, as are likely to contribute to their recovery. But this plan will answer no good purpose, if those men only are embarked, who are in the last stage of disease, or debility; or if the vessel coasts only along the island, and constantly is putting into port. The patients should be such as have stamina enough to promise a recovery, and who require

* During peace, private, unarmed vessels, would of course answer the same purpose.

strength

strength only to effect it: therefore men who have been reduced by a severe attack of fever, or others, who are subject to frequent returns of that disease, are the description of convalescents that are likely to benefit by a West India cruize; and this object will best be promoted, in a pure, open air, uninfluenced by the wind from the land. It therefore would still more contribute to the recovery of such men, if a convalescent hospital for the West Indies in general, be established in the most healthy of the Bahama, or Bermuda islands, to which, from being only a few days sail from the West Indies, the double purpose of a cruize and change of climate would be answered, while the sick may be conveyed and returned, without much inconvenience or expence.

In those cases, where the viscera considerably are diseased, or where the first plan is not sufficiently powerful to promise very salutary effects, there always should be frequent means of conveying such men to Europe; and it is a truth which strongly should be impressed on the minds of government,

vernment, of the commanding officers, and of the surgeons of regiments, that more advantage is likely to accrue to the service, from sending to Europe men, who probably might recover by continuing in the West Indies, than by keeping others in the island, who inevitably must be lost by such a measure.

The plan which formerly was proposed to government by Mr. Weir, when garrison surgeon of Jamaica, might be adopted to advantage, in aid to any other that may be found necessary. It was recommended by that gentleman, to have an hospital established at Falmouth, for the reception of such convalescents as might be sent from Jamaica by the packets; which were to convey in each, no more than six men, who from being debilitated by fever only, were not in an advanced stage of disease, and therefore were likely to recover by a voyage, and change of climate; they were to be accompanied by no women or children, and the packets were to convey back to Jamaica, such of the men as had recovered

recovered at Falmouth. Mr. Weir's plan no doubt would save a number of lives; though it might be requisite to add to it, the frequent means of conveying to Europe, a greater proportion of convalescents and invalids, than could be accommodated in the packets.

CHAP.

CHAP. X.

On Ulcers.

THERE is no part of the military practice, which proves so perplexing, or in general affords so little satisfaction to the surgeon, as ulcers. There is a particular disposition in the constitutions of soldiers, arising from their diet, their intemperance, their frequent exposure to transitions of weather, and from the nature of their duty, which at all times is very unfavorable to the cure of ulcers; while this difficulty often is increased, by the carelessness of the men in concealing, or by their wantonly creating, or irritating sores, for the purpose of screening themselves afterwards from duty.

In the West Indies, it too often happens that ulcers on no account will admit of a cure, but by changing the climate; and this

resource frequently is postponed, until it proves a doubtful remedy. By inattention to this circumstance, the service is deprived of a large proportion of our most valuable men, many of whom are sacrificed to the disease, and others are so disabled, as to be rendered totally incapable of rejoining their regiments. However, it is only in mountainous situations, where ulcer becomes a formidable disease in a tropical climate; the plains and sea-coast not being so productive of this disease, nor are they so unfavorable to its cure. That soldiers should be more exposed to the causes of ulcer in the mountains, than in the plains, or on the sea-coast, is a circumstance to be expected; since from the hills being covered with bushes, stumps of trees, and sharp rocks, the men are more liable to accidents, than in a country that is cleared and cultivated; while the number of chigoes, mosquitos, and other venomous insects, which universally prevail in woody situations, are additional excitements to the production of ulcer. But that these acci-

dents, or causes should give rise to such rapid, and alarming ulceration as takes place in mountainous situations, even among men who apparently are in high health; and that the cure, in most instances, should be rendered so extremely difficult in such situations, and more easily be accomplished in the plains and sea-coast, is a phenomenon, that I acknowledge myself at a loss to explain. It also appears, that it is in mountains of a certain temperature only, that ulcers are so frequent, or are so difficult to be healed: I have been informed by gentlemen who reside in the higher situations of Jamaica, that this disease is neither general among their negroes, nor resists the common mode of treatment; while the negro suffers equally with the soldier, in situations where ulcers prevail. From this circumstance, it would appear, that at Stony Hill, and other mountains of a similar temperature, the state of the constitution is such, as upon the application of any exciting cause, to induce sufficient inflammation in the vessels of the injured part, to produce

produce ulceration, without possessing tone to promote the process necessary to facilitate a cure: while in the higher mountains, the cooler temperature of the air conveys to the constitution a degree of power sufficient to accomplish this object: it also is probable, that, upon the same principle, the climate of the plains and sea-coast, which, by its relaxing tendency, removes all disposition to inflammation, a small degree of which might promote, or give rise to ulceration, renders ulcers less frequent or formidable, than in the lower mountains. It however is necessary to mention, that it always became necessary to send the worst cases of ulcers to Europe. But these remarks merely are suggested, with a view of leading to a more rational mode of accounting for such occurrences; and what would be of much greater importance, to a more successful treatment of ulcers.

It is singular, that at Stoney Hill in particular, in men who apparently were in good health, the most trifling scratch, con-

tusion, or the bite of an insect, often would be converted into a most alarming ulcer, and in a few days extend itself over a very large surface; baffling all surgical skill. It also is remarkable, that the ulcer frequently would put on a scorbutic appearance, by becoming spongy, with a black sanious discharge, though no other symptoms appeared which were indicative of scurvy being in the habit, nor were there causes to be assigned, why such a disease should occur; since in the mountains, the men had more frequent, and easy opportunities of procuring vegetables and fruit, than in the plains. In some instances, the ulcer appeared of the phagedenic kind, with a deep cavity, and thick callous edges; while in others, the discharge simply was purulent, and the ulcer assumed the deceitful appearance of being in a state the most favorable to its cure; it would often require the process of cicatrization only to effect it; when a sudden change would take place, and the process of ulceration return with still greater rapidity than before, and with
more

more alarming symptoms. In the worst cases, the patient was much reduced, became hectic, and the bone, in many instances, carious; while he frequently was attacked with an intermittent fever, or dysentery, which, in many instances, terminated with his life. In that state of the atmosphere which was most productive of fever, or of dysentery, patients laboring under ulcers, particularly were susceptible of attacks of those complaints, and by which they often suffered severely; the ulcers, in such instances, assuming a still more unhealthy aspect, increasing in their irritability, and only affording a small sanious discharge. Though ulcers, in some particular constitutions, gave rise to but little pain, yet in general, they were extremely irritable, particularly when they attacked the fingers or toes; and when they were far advanced, and the patient was much reduced, the least stimulating application occasioned the most excruciating pain.

Mr. Mitchell, surgeon to the 63d regiment, amputated several ulcerated legs at

Up Park Camp; and upon dissecting the limb, in several instances, he found both tibia and fibula (but more frequently the former) in a complete state of disease, the bone being carious through the whole of its substance, and often nearly through its whole length.

In the treatment of ulcers, every attention was paid to the patient's constitution, every local application which the experience of former, or modern surgery recommended, or the practice of the country sanctioned, too often were tried unsuccessfully; and left no alternative, but adopting the doubtful remedy of removing the patient's limb, or of sending him to Europe. As however there were some remedies, in the treatment of ulcers, which were more successfully employed than others, it becomes necessary to mention them, to enable the patient to derive that benefit (however feeble it may be) which our confined knowledge on the subject affords.

All unctuous applications universally are hurtful, and the warm poultice, except in some

some particular cases, is an ambiguous remedy. Upon being received into the hospital, the patient universally is placed upon a diet of fresh meat; to this should be added confinement to the bed, a liberal supply of vegetables and fruit, a moderate allowance of porter and wine; and where there is the least mark of debility in the system, or where the ulcer assumes a scorbutic appearance, the bark, and the vegetable acids should be given in very large proportions. The topical applications that have been tried for the cure of ulcers, are more distinguished for their number, than for the success which has attended their use. In some cases, the Peruvian bark sprinkled very thick over the ulcer, and kept constantly moist with the vegetable acid, has appeared to be serviceable; in others, where the irritability is not great, it has produced more benefit when mixed with the spirit of turpentine: the hydrargyrus nitratus ruber is suitable to ulcers of the phagedenic kind; and where they are very painful, a warm solution of opium has

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afforded

afforded relief. Where the patient is of full habit, and the circumference of the ulcer assumes an inflammatory appearance, to relieve the distended vessels by small scarifications with a lancet, is indicated; but such cases are not frequent among soldiers in a tropical climate; ulcer, from an atonic state of the vessels of the part affected, being more peculiar to such situations. The powder of chamomile, of quassia, and various other bitters of the vegetable class, have been used as an application to ulcers, and sometimes with good effect; and I am informed by some gentlemen who practise in the country of Jamaica, that the old female negroes, who often, by people of their own complexion, are employed to cure ulcers, treat them very successfully by applying to the part affected, in a warm state, the pulp of a roasted lime, or bitter orange. But it is evident that the constitutions of soldiers and negroes are not alike; since among the former, I witnessed too many instances of the failure of every appli-

application. Much however may be effected, by the great attention of the surgeon, in the early stage of the disease. A state of rest, a diet of fresh meat and vegetables, an assiduous application of such remedies as, from the nature of the case, appear to be the most suitable to check the progress of ulceration; and a rigid observance of cleanliness in dressing the ulcer, by carefully and frequently removing the superfluous discharge, which too frequently is a cause of increased ulceration; an attention to these circumstances, often will prevent the disease arriving at that state, (and which too frequently happens) when its progress no longer can be checked by the most judicious exertions of the surgeon. On this account, the dressing of ulcers never should be entrusted to the charge of orderly men, or nurses; and certainly it also is of great importance, that each patient has a sponge, water, and dressings to himself; that the surgeon is exceedingly cautious in cleaning his instruments after he

he has used them, and that the bandages and linen of each patient be not intermixed, and be as frequently washed, as circumstances will admit. In a country where ulceration so easily is induced, and where the discharge of ulcers often is of the most acrid and offensive kind, a communication of this matter to the sound part of the patient from whose ulcer it is produced, or to that of any of the other sick, frequently will give rise to fresh ulceration; and when applied to other ulcers, it never fails immediately to render them worse.

My own observations on this disease, were not sufficiently extensive to enable me to determine, how far it might be communicated by contagion; but I am informed by Mr. Weir, that such absolutely has been the case, and that the introduction of one very offensive ulcer into a ward, has occasioned nearly the whole of the sick to be affected in the same way. The poison is supposed to be communicated by a fly, which conveys the putrid matter to other ulcers, by which, a much more rapid ulceration

ation immediately takes place; the putrid slough commencing at a particular point, and soon extending over a large surface. In this manner, the yaws has been communicated to a whole ward, with ulcers; a circumstance so well known to the negroes, that when they are affected with ulcers, they consider a fly to be their greatest enemy. In every part of the treatment of ulcers, cleanliness therefore cannot be too rigidly enforced, and particularly, since, in a surgical ward, it tends to the prevention of offensive smells, which often affect the health of the sick.

Though the art of surgery affords but very limited means to effect a cure in the ulcers of tropical climates, yet it is well known, that valuable regulations, and useful precautions, will go great lengths towards their prevention. It therefore becomes of the utmost importance to direct our particular attention to this object; since on its success, depend the lives of a number of valuable men, who either must be sacri-

sacrificed, or whose services will be rendered useless, by this disease.

In the prevention of ulcers, much may be effected by a well-regulated diet, a suitable dress, a judicious interior economy in a regiment, and by the activity and zeal of the surgeon.

The rations which the soldiers receive in Jamaica, and which are furnished at the expence of the Island, consist of five days salt, and two days fresh provisions in a week. This allowance, though formed of the best qualities of the kind, is not calculated to support the constitution, against those attacks of disease, to which the troops so constantly are exposed in a tropical climate. The nourishment from salt provisions, under all circumstances, does not produce that healthy chyle, which is derived from the use of fresh; and in no instance can it be properly converted into chyle, but in strong, robust men, whose digestive powers are vigorous and unimpaired; and whose employment is of that laborious

laborious nature, as to render the process of digestion too rapid, unless their diet partly consists of food, that will not admit of easy dissolution. Among soldiers, who seldom possess constitutions of this description, whose stomachs from imprudences, and from the relaxation induced by a warm climate, frequently have lost their tone, and whose mode of life and habits do not often correspond with that, which may be the most favorable to the promotion of digestion; such a diet, in a warm climate, inevitably has a tendency to weaken the powers of life, and to deprive the men of the stamina which may be necessary, to go through with safety those violent diseases, to which they are exposed in tropical climates. Consequently we observe, that whether an attack of fever, dysentery, or ulcer occurs, a difficulty arises in the cure among soldiers, which is not observable in any other class of people; and though there are many sources for such diseases, independent of an improper diet, yet the latter cannot fail to possess

possess a considerable share in aggravating the symptoms, and affording an additional obstacle to their cure.

The soldier, by the liberal allowance of the Island, enjoys so many advantages in Jamaica, which are not to be derived from home quarters, that with the considerable increase lately added to his pay, and with the aid of his salt provisions, he can afford, without any severe deductions, to add two or three more, to the two days fresh provisions in the week now allowed him by the Island; to purchase a sufficient quantity of those vegetables of the country, that would be the most conducive to his health; and by the regiments importing porter into the island at the first price, to drink a pint of that salutary liquor three days in the week, in lieu of the rum which now he is allowed as a part of his ration: even his salt provisions, by soaking it long in fresh water, and afterwards stewing it up with yams, plantains, peppers, and other tropical vegetables, might be converted into a much more nutritive diet, than by the present

present method of simply boiling, and eating the meat separately with the vegetables. From a change in the process, the same proportion of meat would furnish double the quantity of diet, the food more easily would be converted into chyle, and by the animal and vegetable parts of it being more completely blended, it would contribute in a much greater degree to the strength and health of the men.

In the mountains, or in those situations where men are much exposed to accidents, or to the stings of insects, considerable mischief, and many ulcers may be prevented by a suitable dress. Leathern leggins made to button over short half-boots, and particularly if lined with thin tin, lead, or any other substance capable of resisting blows, or the bites of insects, would keep the feet and legs dry, would prevent accidents from the stumps of trees, sharp rocks, or from the bushes of the hills, and on a march, would preserve the feet from being galled with sand, which shoes only too easily allow to penetrate. In such situations,

situations, the foldiers should sleep in trowsers with feet, to guard (if possible) against the bites of insects. The consequences of such accidents also would completely be obviated, if the men's feet were daily washed, and examined; and afterwards well rubbed with the juice of the bitter orange, or of the lime, which are the remedies that are found to be the most successful in the cure, and prevention of the bites of tropical insects.

The 13th regiment of infantry has afforded so satisfactory a proof of the advantages to be derived from a judicious interior œconomy, in the prevention of diseases in general, in a tropical climate; that for the prevention of ulcers, I cannot do the subject more justice than by a reference to those valuable regulations which so accurately have been delineated by Dr. Gordon. A rigid observance of them will effect every good purpose that can be answered in situations, where judicious precautions can operate to the prevention of diseases among

among the troops; and as they admit of being adopted without the least inconvenience to the service, and so powerfully must contribute to the discipline and good order of the men; it earnestly is to be hoped that they will be introduced into every regiment upon West India service. For the prevention of ulcers, great advantage will be derived from appropriating two days in the week, for the examination of the men's legs and feet: a non-commissioned officer to each company should be appointed to do this duty, to be made responsible for the due performance of it, and to be subject to disgrace should he fail to report to the surgeon, any of the men who have the most trifling sore, or even the appearance of disease upon the extremities. The serjeant-major should inspect this duty; and once a week, one of the medical officers of the regiment should attend, to ascertain whether it has been punctually performed. Any of the men, who are seen wandering over the hills

without leave, or beyond the limits prescribed by the regiment, and particularly if detected without their leggins, should be confined and punished.

It becomes an essential part of the surgeon's duty, not to allow, on any account whatever, men with the most trifling scratch, or sore, to remain in barracks; to be vigilant in detecting, and confining those who conceal their complaints; and particularly never to omit noticing such non-commissioned officers, who, in the most trifling case, have neglected to include it in their report. The surgeon should make it a rule not to allow patients with ulcers to leave the hospital, until such a period after cicatrization has passed, as to render it improbable for the ulcer to relapse: he should give in a list of such men as have been discharged the hospital to the commanding officer, and recommend them, for a certain time afterwards, to be employed on a duty where they will not be exposed to accidents, or to the means of inducing a return of the ulcer.

ulcer. Convalescents of that description should attend the hospital twice a week, to have their legs and state of health examined by the surgeon, who of course will order back into the ward, any of the men whose appearances are doubtful, or which do not promise a permanent recovery of their disease.

To these regulations, which are equally addressed to the commanding officer, and to the surgeon of the regiment, must be added a duty of no less importance, and the observance of which, the welfare of the service strongly claims from those officers: this is, that they do not postpone to too late a period, the recommending to be sent to Europe such unfortunate men, whose cases of ulcers are not likely to be benefited in a tropical climate. An inattention to this circumstance, I am apprehensive, has furnished the means of too many of our most useful men being sacrificed to the ravages of this dreadful evil; and as ulcers universally are with difficulty cured in the

West Indies, the surgeon will be acting conscientiously, and for the benefit of the service, by having a very early recourse to this expediency.

To those who have witnessed the rapid progress of ulcers in a tropical climate, and the extreme difficulty, and often impossibility of effecting their cure, these regulations and precautions (however minute and trifling they may appear to some) will not by them be deemed of little importance; and where the health, lives, and services of so many valuable men, are involved in their observance, I am convinced, that the commanding, and medical officers of regiments, readily and cheerfully will adopt, any means which promise to be the most conducive to the prevention of so serious an evil.

Having finished my remarks on the diseases of the army in Jamaica, the annexed tables are introduced by permission of Mr. Weir, for the purpose of shewing the diseases as they occurred at the different ports, during

Well indeed the surgeon will be assisted considerably, and for the benefit of the service, by having a very ready recourse to this expediency.

To those who have witnessed the rapid progress of ulcers in a tropical climate, and the extreme difficulty, and often impossibility of effecting their cure, these regulations and precautions (however minute and trifling they may appear to some) will not by them be deemed of little importance; and where the health, lives, and services of so many valuable men, are involved in their observance, I am convinced, that the commanding and medical officers of regiments, readily and cheerfully will adopt any means which promise to be the most conducive to the prevention of so serious an evil.

Having finished my remarks on the diseases of the army in Jamaica, the annexed tables are introduced by permission of Mr. Weir, for the purpose of showing the diseases as they occurred at the different posts during

RETURN of the SICK of the REGIMENTS in JAMAICA for the Months of OCTOBER, NOVEMBER, and
DECEMBER 1792.

REGIMENTS and STATIONS.	Remained Sick.	Entered Ince.	Discharged.	Died.	Diseases, and Number of Sick in each Hospital.											Total.	
					Fever.	Flux.	Ulcers.	Venerals.	Coughs.	Rheumatism.	Diseased Liver.	Epilepsy.	Bruiſes.	Swelled Testicle.	Eruption.		Contuſion.
20th Regiment Light Dragoons, Spaniſh Town	16	220	167	8	38	7	9	2	1	1	-	1	2	-	-	-	61
1ſt Battalion Royal, Up Park - - - -	15	62	58	4	7	3	1	1	1	1	-	-	-	-	1	-	15
10th Regiment, Stoney Hill - - - -	24	45	51	1	10	-	4	-	1	-	-	-	-	-	2	-	17
13th Regiment, Kingſton - - - -	12	114	100	4	20	-	2	-	-	-	-	-	-	-	-	-	22
16th Regiment, Montego Bay - - - -	45	325	171	21	140	1	34	1	1	1	-	-	-	-	-	-	170
20th Regiment, Up Park - - - -	13	137	116	5	7	12	5	-	2	3	-	-	-	-	-	-	29
49th Regiment, Fort Auguſta - - - -	16	118	103	6	9	10	5	-	1	-	-	-	-	-	-	1	25
62d Regiment, Spaniſh Town - - - -	24	198	186	9	4	3	10	2	-	3	1	-	1	1	1	1	27
One Company, 10th Regiment, Port Antonio	8	25	30	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Convaleſcent Hoſpital, Port Royal - - -	40	61	67	9	8	6	8	-	1	1	1	-	-	-	-	-	25
Detachment 20th Light Dragoons, Fort Auguſta	-	45	40	4	-	-	-	-	1	-	-	-	-	-	-	-	1
One Company, 10th Regiment, Lucea - -	7	20	20	3	1	1	-	2	-	-	-	-	-	-	-	-	4
Total - -	210	1270	1119	77	237	43	76	8	9	10	2	1	3	1	4	1	404

RETURN of the SICK of the REGIMENTS ſtationed in JAMAICA, for the Months of JANUARY, FEBRUARY, and MARCH 1793.

REGIMENTS and STATIONS.	Diseases, and Number of Sick in each Hospital.																		
	Remained Sick.	Entered Ince.	Discharged.	Died.	Fevers.	Fluxes.	Ulcers.	Venerals.	Coughs.	Rheumatism.	Diseased Liver.	Dropsy.	Epilepsy.	Bruiſes.	Sprains.	Erysipelas.	Hydrocele.	Consumptive.	Total.
20th Regiment Light Dragoons, Spanish Town	61	278	282	7	14	10	11	5	3	-	-	1	1	3	-	-	-	2	50
1st Battalion Royal, Up Park	15	51	52	-	2	2	3	2	1	2	1	-	-	-	2	1	-	-	16
10th Regiment, Stoney Hill	17	38	40	3	1	-	2	3	4	-	-	-	-	-	1	1	-	-	12
13th Regiment, Kingston	22	80	84	3	10	-	2	1	1	1	-	-	-	-	-	-	-	-	15
16th Regiment, Six Companies, Montego Bay	178	164	244	2	29	16	24	1	2	-	2	-	1	-	-	-	-	-	75
Two Companies, 16th Regiment, St. Ann's Bay	30	90	87	8	17	2	5	-	1	-	-	-	-	-	-	-	-	-	25
One Company, 16th Regiment, Falmouth	12	20	24	-	-	-	3	-	2	-	-	-	-	3	-	-	-	-	8
20th Regiment of Foot, Port Royal	29	192	188	4	12	10	3	-	4	-	-	-	-	-	-	-	-	-	29
49th Regiment, Fort Augusta	25	135	137	4	10	3	4	-	-	-	-	-	-	-	-	1	1	-	19
62d Regiment, Spanish Town	27	83	95	2	-	2	2	7	-	2	-	-	-	-	-	-	-	-	13
One Company, 16th Regiment, Oracubels	-	28	15	-	2	-	3	-	3	-	-	-	-	-	-	-	-	-	8
One Company, 10th Regiment, Port Antonio	-	9	8	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Convalescent Hospital, Port Royal	25	59	51	3	10	5	5	-	4	2	-	1	-	-	-	-	-	3	30
Total	441	1227	1411	46	108	50	67	17	25	7	3	2	2	6	3	3	1	5	301

[To face page 277, Vol. II.]

RETURN of the SICK of the REGIMENTS ſtationed in JAMAICA, for the Months of APRIL, MAY, and
JUNE 1793.

REGIMENTS and STATIONS.	Remained Sick.	Entered Ince.	Discharged.	Died.	Diseases, and Number of Sick in each Hospital.													Total.
					Fever.	Flux.	Ulcers.	Venerals.	Coughs.	Rheumatism.	Pleurisy.	Fracture.	Fistula.	Epilepsy.	Infane.	Ophthalmia.	Convalescent.	
20th Light Dragoons, Spanish Town	50	205	180	15	21	10	11	1	-	-	1	-	-	1	1	1	13	60
1st Battalion Royal, Up Park	14	75	64	1	17	4	-	1	1	-	-	-	1	-	-	-	-	24
10th Regiment, Stoney Hill	12	50	38	1	6	6	4	2	2	1	-	-	1	-	-	1	-	33
10th Regiment, Four Companies, Up Park	-	37	32	1	4	-	-	-	-	-	-	-	-	-	-	-	-	4
13th Regiment, Kingston	15	99	78	-	25	1	2	1	2	2	1	2	-	-	-	-	-	36
20th Regiment of Foot, Port Royal	31	172	174	3	16	6	2	-	1	-	1	-	-	-	-	-	-	26
49th Regiment, Fort Augusta	19	178	179	1	12	2	1	2	-	-	-	-	-	-	-	-	-	17
62d Regiment, Spanish Town	13	67	61	4	10	1	1	3	-	-	-	-	-	-	-	-	-	15
10th Regiment, One Company, Port Antonio	1	7	7	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
16th Regiment, One Company, Falmouth	8	12	12	-	-	-	5	1	1	-	-	-	-	1	-	-	-	8
16th Regiment, Six Companies, Montego Bay	37	69	95	2	4	3	1	1	-	-	-	-	-	-	-	-	-	11
16th Regiment, Three Companies, Lucea	45	67	90	3	6	11	1	-	1	-	-	-	-	-	-	-	-	19
16th Regiment, One Company, Oracubels	8	14	16	-	2	1	1	1	-	1	-	-	-	-	-	-	-	6
Total	253	1052	1026	31	122	46	31	12	11	4	3	2	2	2	1	2	13	250

RETURN of the SICK of the REGIMENTS ſtationed in JAMAICA, for the Months of JULY, AUGUST, and
SEPTEMBER 1793.

REGIMENTS and STATIONS.	Remained Sick.	Entered Ince.	Discharged.	Died.	Diseases, and Number of Sick in each Hospital.														Total.
					Fevers.	Fluxes.	Ulcers.	Venerals.	Coughs.	Rheumatism.	Epilepsy.	Dropsy.	Fracture.	Rupture.	Consumptive.	Strophula.	Convalescent.		
20th Light Dragoons, Spanish Town - -	60	196	195	15	11	7	4	-	-	-	-	-	-	-	-	-	24	40	
1st Battalion Royal, Up Park - - - -	24	180	152	6	42	2	-	-	-	-	-	-	-	-	-	-	-	44	
10th Regiment, Stoney Hill - - - -	23	51	59	2	4	1	4	2	-	2	-	-	-	-	-	-	-	13	
One Company, 10th Regiment, Port Antonio	1	20	19	1	-	1	-	-	-	-	-	-	-	-	-	-	-	1	
Three Companies, 16th Regiment, Montego Bay	19	65	37	4	16	2	4	-	-	1	-	1	-	-	-	-	-	24	
One Company, 16th Regiment, Falmouth -	8	10	9	1	5	-	1	-	1	-	1	-	-	-	-	-	-	8	
One Company, 16th Regiment, Oracubels -	6	2	5	1	-	1	1	-	-	-	-	-	-	-	-	-	-	2	
16th Detachment, Lucea - - - - -	11	23	18	2	1	1	6	1	-	2	-	-	-	1	2	-	-	14	
20th Regiment of Foot, Port Royal - - -	26	172	150	2	25	9	2	1	3	4	-	-	2	-	-	-	-	40	
49th Regiment, Fort Augusta - - - -	17	117	121	2	7	1	2	-	-	-	-	-	-	-	-	1	-	11	
62d Regiment, Spanish Town - - - -	15	137	116	13	19	-	-	3	-	-	-	-	-	1	-	-	-	23	
Total - -	210	979	881	49	130	24	24	7	4	9	1	1	2	2	2	1	24	234	

RETURN of the SICK of the REGIMENTS stationed in JAMAICA, for the Months of OCTOBER, NOVEMBER, and DECEMBER 1793.

REGIMENTS and STATIONS.	Remained Sick.	Entered since.	Discharged.	Died.	Diseases, and Number of Sick in each Hospital.												Total.
					Fever.	Flux.	Ulcers.	Venerals.	Coughs.	Rheumatism.	Dropsy.	Fracture.	Sprains.	Consumptive.	Bruises.	Convalescent.	
20th Regiment Light Dragoons, Spanish Town	59	242	202	30	17	-	-	2	-	-	-	-	-	-	-	50	69
1st Battalion Royal, Up Park - - - -	44	182	165	15	32	7	5	-	-	-	-	-	-	-	2	-	46
10th Regiment, Stoney Hill - - - -	13	68	53	1	12	2	6	1	4	-	-	1	-	-	1	-	27
16th Regiment, Three Companies, Montego Bay	24	81	72	5	22	2	1	-	-	1	-	-	1	1	-	-	28
16th Regiment, Detachment, Lucea - - -	14	11	13	1	1	1	6	1	1	1	-	-	-	-	-	-	11
16th Regiment, One Company, Oracubets -	2	11	7	2	2	1	1	-	-	-	-	-	-	-	-	-	4
16th Regiment, One Company, Falmouth -	8	17	19	4	1	1	-	-	-	-	-	-	-	-	-	-	2
20th Regiment of Foot, Port Royal - - -	28	143	140	3	6	5	5	2	2	3	-	-	2	-	3	-	28
20th Regiment of Foot, Kingston - - - -	20	60	46	10	13	-	3	-	-	1	1	-	-	-	-	6	24
62d Regiment, Spanish Town - - - -	23	204	185	23	10	7	-	1	-	-	-	-	-	-	-	-	18
Total - -	235	1019	902	94	116	26	27	7	7	6	1	1	3	1	6	56	257

REGIMENTS and STATIONS.	Remained Sick.	Entered since.	Discharged.	Died.	Diseases, and Number of Sick in each Hospital.												Total.
					Fever.	Flux.	Ulcers.	Venerals.	Coughs.	Rheumatism.	Dropsy.	Fracture.	Sprains.	Consumptive.	Bruises.	Convalescent.	
20th Regiment Light Dragoons, Spanish Town	53	204	185	23	10	7	-	1	-	-	-	-	-	-	-	-	18
1st Battalion Royal, Up Park - - - -	40	182	165	15	32	7	5	-	-	-	-	-	-	-	2	-	46
10th Regiment, Stoney Hill - - - -	13	68	53	1	12	2	6	1	4	-	-	1	-	-	1	-	27
16th Regiment, Three Companies, Montego Bay	24	81	72	5	22	2	1	-	-	1	-	-	1	1	-	-	28
16th Regiment, Detachment, Lucea - - -	14	11	13	1	1	1	6	1	1	1	-	-	-	-	-	-	11
16th Regiment, One Company, Oracubets -	2	11	7	2	2	1	1	-	-	-	-	-	-	-	-	-	4
16th Regiment, One Company, Falmouth -	8	17	19	4	1	1	-	-	-	-	-	-	-	-	-	-	2
20th Regiment of Foot, Port Royal - - -	28	143	140	3	6	5	5	2	2	3	-	-	2	-	3	-	28
20th Regiment of Foot, Kingston - - - -	20	60	46	10	13	-	3	-	-	1	1	-	-	-	-	6	24
62d Regiment, Spanish Town - - - -	23	204	185	23	10	7	-	1	-	-	-	-	-	-	-	-	18
Total - -	235	1019	902	94	116	26	27	7	7	6	1	1	3	1	6	56	257

RETURN of the SICK of the REGIMENTS stationed in JAMAICA, for the Months of OCTOBER, NOVEMBER, and DECEMBER 1793.

RETURN of the SICK of the REGIMENTS stationed in JAMAICA, for the Months of JANUARY, FEBRUARY, and MARCH 1794.

REGIMENTS and STATIONS.	Remained Sick.	Entered since.	Discharged.	Died.	Diseases, and Number of Sick in each Hospital.												Total.
					Fever.	Flux.	Ulcers.	Venerals.	Coughs.	Rheumatism.	Lame.	Dropsy.	Amputated Arm.	Consumptive.	Convalescent.		
20th Light Dragoons, Spanish Town - -	69	121	128	18	-	-	-	-	-	-	-	-	-	-	-	44	44
1st Battalion Royal, Up Park - - - -	46	164	173	14	18	1	1	-	1	2	-	-	-	-	-	-	23
10th Regiment, Stoney Hill - - - -	27	9	24	1	1	2	6	1	-	-	-	-	1	-	-	-	11
10th Regiment, Kingston - - - -	21	109	87	3	26	5	3	-	-	4	-	2	-	-	-	-	40
16th Regiment, Montego Bay - - - -	28	17	19	6	9	5	-	-	-	3	1	-	-	2	-	-	20
62d Regiment, Spanish Town - - - -	19	96	93	6	13	1	-	2	-	-	-	-	-	-	-	-	16
Total - -	210	516	524	48	67	14	10	3	1	9	1	2	1	2	44	154	

RETURN of the SICK of the REGIMENTS stationed in JAMAICA, for the Months of APRIL, MAY, and JUNE 1794.

REGIMENTS and STATIONS,	Remained Sick.	Entered since.	Discharged.	Died.	Diseases, and Number of Sick in each Hospital.												Total.
					Fever.	Flux.	Ulcers.	Venerals.	Coughs.	Rheumatism.	Jaundice.	Dropsy.	Wound.	Pleurisy.	Convalescent.		
20th Light Dragoons, Spanish Town - -	44	120	106	3	10	-	-	-	1	-	1	2	-	-	41	55	
10th Regiment, Kingston - - - - -	37	105	111	18	11	-	1	-	-	-	-	1	-	-	-	13	
10th Regiment, Stoney Hill and Up Park -	8	34	27	6	4	-	2	1	-	-	-	1	1	-	-	9	
16th Regiment, Fort Augusta - - - -	53	61	87	-	8	2	11	1	-	1	-	-	2	2	-	27	
62d Regiment, Spanish Town - - - -	16	93	78	8	12	2	-	2	-	-	-	-	-	-	-	16	
Total - -	158	413	409	35	45	4	14	4	1	1	1	4	3	2	41	120	

During the most tickly period in that

* I am indebted to Mr. Wren, Inspector General of
Highways to the notes lately compiled in 3 vols. De-
scribing and forming a map of the routes in France,
for many useful facts on subjects as well as on several
other subjects connected with a gentleman of Mr.
Wren's respectable professional character, and long
experience, I considered of too much importance, to be
withheld in a publication intended not only for general
perusal, but more particularly for that of the military
authorities.

during the most sickly period in that island*.

* I am indebted to Mr. WEIR, inspector general of hospitals to the forces lately employed in St. Domingo, and formerly surgeon to the forces in Jamaica, for many useful hints on ulcers, as well as on several other subjects: information from a gentleman of Mr. Weir's respectability, professional character, and long experience, I considered of too much importance, to be withheld in a publication, intended not only for general perusal, but more particularly for that of the military practitioner.

CHAP. XI.

On the duties of the regimental surgeon, the attendance of the sick, and the arrangement of hospitals in Jamaica.

IT is only within a very late period, that the situation of regimental surgeon has been considered in the important light it deserves. Formerly, in too many instances, it was used as a convenience, for the younger branch of the profession, to fill up that time which could not be employed in private practice; to enable them to acquire practical knowledge; and to put them in the way of forming connections, which, upon retiring, were to ensure them future success. The pay and circumstances under which a regimental surgeon at that period was placed, fully justified his availing himself of the few advantages the situation offered, and of retiring, as soon as he conceived

ceived it his interest ; since neither his income, nor his rank in the regiment, were of a nature to promise him either the means, or the prospect of supporting that consequence in society, to which from his education, and profession he was entitled. It also must be allowed, that those who had the appointment of such officers, in too many instances, did not sufficiently attend to the abilities, character, and qualifications, of the persons they recommended ; but were satisfied with a surgical testimony only ; not reflecting, that the surgical part of their duty will bear a small comparison in importance, with the office of physician, with the knowledge of the character, habits, and constitutions of soldiers, or an acquaintance with the arrangement of military hospitals. Such information is only to be derived from local experience ; and though a surgeon would appear to great disadvantage in the field, and would be guilty of unpardonable ignorance, were he not prepared for any emergency that might happen, yet on a great many, and

I may add on most other occasions, his diploma as a surgeon, or even physician, (however justly obtained,) will be of little use to remove many of those embarrassments, which his military experience would have obviated.

It should be recollected, that a community (for such a regiment ought to be considered) of six hundred, and in some instances of a thousand men, whose health and lives, in the event of sickness, are entrusted to the charge, or at least the responsibility of one person; both in a political and moral sense, demands great care and circumspection, in the selection of such men who may in every particular, be calculated to do justice to the situation; and that the officers, but more especially the men, of a regiment, often labour under disadvantages with respect to medical attendance, that are not attached to people in civil life; since from duty, and often by being removed from the possibility of receiving other advice, they are compelled to put up with the attendance of such medical

medical officers as the service has appointed; though such persons may not, in their opinion, be properly qualified to do justice to their complaints.

To the great credit of the present administration, many of these objections lately have been removed; the surgeon's pay has been increased, his rank in the army made respectable, and his qualifications as physician, as well as surgeon, more nicely examined. But still it must be admitted, that these salutary measures might be improved; that it would be œconomy even to increase his pay; policy, to give him more rank; and that some more satisfactory proofs of his abilities should be obtained, than a mere verbal examination, before he should be considered qualified to receive the appointment of surgeon to a regiment.

It must rest with government to decide whether such a measure be practicable, or in what manner it should be effected; but it certainly would contribute very essentially to the welfare of the service, if an invariable rule were to be observed, that no person

person shall be allowed to fill this situation, until he has served at least four years, in the capacity of assistant surgeon, and can produce certificates from the commanding and chief medical officers, under whom he has served, of his being qualified for the situation of regimental surgeon; and that he afterwards should undergo an examination by the army medical board, on those points which are most essential to constitute the necessary qualification. In the event of such a regulation, the assistant surgeon, previous to his appointment, should undergo a similar examination in his medical and surgical capacity, which is now adopted to qualify the surgeon.

The abilities of individuals more certainly would be ascertained, if to such testimonies were added, the annual observations of the assistant surgeons, on the diseases of the men who come under their care, with the mode of treatment adopted; on the state and circumstances of the weather, at the different periods of the year, with the effects each change apparently may have produced

produced on the health of the men : these with remarks on the different quarters at which the troops have been stationed during the year, distinguishing the sources of disease which depend upon local, from those which arise from accidental causes, as produced by the irregularity, particular discipline, or the duty of the men, would embrace so large a portion of the military practitioner's qualifications, as in a great measure to supersede the necessity of a verbal examination ; by affording the most satisfactory proof of the abilities of those who may be entitled to succeed to the situation of regimental surgeon. Such an arrangement would initiate young gentlemen into an useful method of committing to paper their own observations on diseases, with their phænomena, as they occur in the different parts of the world where they happen to be stationed. It would tend to enlarge their minds on the scientific, as well as practical, part of their profession ; and it would lay the foundation for such a mass of useful information, to be collected from

from every quarter, as ultimately must throw considerable light upon the science and practice of medicine in general. This effect still more certainly would be produced, if the regimental surgeons were called upon to give in their annual remarks upon a similar plan; and some particular distinction, of a nature sufficiently interesting to excite emulation, be conferred on the authors of such papers, as a board of physicians and surgeons should adjudge to be the most meritorious: to this distinction, the author of the most valuable paper from each district, or command, should be entitled; and such papers should be published annually for the information of the profession at large. An establishment of this nature, by affording a channel through which superior talents would be rendered more conspicuous, and the character of professional men be publicly recorded, would open an extensive field for men of abilities to acquire fame; and in the course of time, the most solid advantages to the science of medicine and surgery, must result from such extensive sources of information.

Under

Under such regulations, government, for the purpose of encouraging men of abilities to continue in the service, with great advantage might increase the pay, and otherwise improve the situation of the regimental surgeon. Many lives and much expence would be saved, by the skill and exertions of medical officers; and the officers and men of the regiment, have the satisfaction of reflecting, that in whatever climate or circumstances the service might place them, still, in the event of sickness, they would be attended by a person in whose abilities they ought to confide.

The qualifications that appear necessary to constitute a good regimental surgeon, are, a proper medical and surgical education; a talent in acquiring the confidence and esteem of the officers and men of his corps; the habit of discovering the character and constitution of the soldiers; the obtaining local knowledge of the diseases attached to situation; simplicity, arrangement, and decision in the application of remedies; and the

the method of arranging and conducting a military hospital in its various departments.

In a tropical climate, much local information must be combined with such qualifications, to render the surgeon's practice in the least degree successful; and as this can only be acquired by experience, I shall take the liberty of suggesting to such gentlemen as have not visited the West Indies, the result of my observations on this subject.

The first circumstance which must naturally engage the attention of the military practitioner destined for the West India service, is the selection of such authors who are reputed to have written the most ably on the diseases of tropical climates. There are few treatises on this subject from which some information may not be derived, but as this only can be discriminated by the reader's experience, it will be more advisable for him to confine his study at first, to a few of the most useful publications.

Dr.

Dr. Hume has given a very accurate description of the tropical continued fever, as it appeared among the seamen in Jamaica in the year 1735, in a book of Tracts published by Dr. Donald Munro, in which also are introduced some good practical observations on the Climate and Diseases of Jamaica, by Dr. Quier. These are well deserving his perusal; as are also the works of Doctors Lind, Bell, Hunter, Blane, and more particularly of Dr. Jackson. The merits of the last author's *Treatise on the Fevers of Jamaica*, are too well established to derive any lustre from my feeble opinion; but in justice to those who may not have perused it, I cannot omit to recommend this work to their particular notice, as containing the most accurate and best delineation of the fevers of Jamaica, and of tropical climates, that ever has been published.

There are some other authors who have written on the diseases of tropical climates; but as the observations of those which are here noticed, have been made in Jamaica,

and as they contain every information to be derived from the perusal of other publications, I would recommend the newly-arrived practitioner, to confine his inquiries at first, to a selection of the most useful parts of such observations. His judgment, when formed by a little experience, will point out where those authors have differed, from what may be the result of his own observations; and this will strongly impress on his mind the utility, of not trusting too much to the representations of others, in points, which lay within his own power, and which certainly it is his duty, to ascertain by attention, and accurate observation. Without this, the diseases of tropical climates, however well delineated by the pen, will appear to him in false shades; and instead of being a true guide, will only serve to mislead him, by attempting to represent facts, which can only be comprehended by his own observations. The countenance of a patient in a dangerous form, from which a judicious practitioner will be able to measure the degree of danger, or the probable safety

safety of the patient, does not admit of a just description ; the particular feel of the skin of such a patient only can be ascertained by those who see the patient ; the rapid changes both favorable and fatal that frequently take place in such cases, and the contradictory effects of medicines, the critical moment, when by the application of a powerful remedy a patient's life may be saved, can only be determined by the practical experience of the physician. No reading, however extensive, no reasoning, however judicious, can assist the practitioner in such cases, if he has not previously seen the effects of such particular remedies as may be adapted to the urgency of the moment. Without this information, he frequently will have the mortification to see his patient sink, at a time he may not suspect his danger ; or when he may have placed too much confidence in a remedy, which his theoretic prejudice may have recommended. I have dwelt the more upon this subject, from a melancholy recollection of what I

myself experienced upon my first arrival in Jamaica. At that period, I had not neglected my medical education, and I had assiduously perused every author I could procure, who had written on tropical diseases; I however still found myself much at a loss in difficult cases. This circumstance made so strong an impression on my feelings, as to induce me, when there was great danger, always to consult men of more experience than myself; to observe their practice, and carefully watch its effects; which in proper time inspired that confidence, which could be derived from actual experience only. I then began to comprehend and see the force of the observations of others; to detect their errors, or discover their penetration; and by comparing their remarks with my own, draw such conclusions, as were most favorable to my future success.

There appears to be no part of the tropical practitioner's duty of so much importance, as an immediate and decisive mode of treating

treating disease, on its first appearance. The changes from a state of safety, to that of imminent danger, are so rapid, and often so unaccountable in the diseases of tropical climates, that the most trifling symptoms of acute disease demand immediate attention; and it is at this period, when the practitioner has it most in his power to prevent mischief, or avert the more fatal consequences of procrastination. It therefore becomes of importance, that the regimental surgeon keeps a vigilant eye over the men, to detect indisposition in their countenance, and immediately to order to the hospital such, whose situations even bear the appearance of requiring medical aid. From the dislike to an hospital, the best men frequently will conceal their complaints, until the disease is too far advanced to be benefited by the surgeon's skill; and the non-commissioned officers are not always to be trusted, in reporting such men in proper time; while the more idle and ill-disposed part of the regiment, from an aversion to duty, frequently are in the habit of placing

themselves in the sick list, and submitting to the confinement and rules of an hospital, in preference to the more active employment, or vigilant inspection, which they would experience by remaining in the barracks. Much circumspection, practical knowledge, and discrimination, is necessary on the part of the surgeon, to draw a line between the encouragement of idleness and imposture, and the neglect of such men whose situations may require his professional assistance; and where he is in doubt, he certainly should err in favour of the former, in preference to risking the consequences of neglecting the necessary attention which may be required for the latter. The countenance and other symptoms, on most occasions, will be a sufficient rule to regulate his conduct; and where these fail, the character the men bear in the regiment, and the manner in which they report themselves, more frequently will lead to a detection.

To gain the confidence and esteem of the officers and men of the regiment, is highly essential,

essential, as well to the surgeon's comfort, as to the success in his practice. The diseases of tropical climates so frequently are fatal, and in general operate so powerfully on the mind, that without the sick have the necessary confidence in their surgeon, fear will act as an additional cause of danger; while the prejudices of the patient are often an obstacle to the application of the more active and effectual remedies. It does not appear to me a difficult task, for the surgeon to acquire so desirable an object; since the sensible or more respectable part of the corps very soon will discriminate his good qualities; and the soldiers, from possessing none of those caprices and mistaken refined ideas, which distinguish many of the civilians, require very few exertions on his part, to prepossess them in his favour. Good sense, a propriety of conduct unaccompanied with pedantry, levity, or too much reserve; and an assiduous attention to his duty, with a humane regard to the feelings and comfort of the sick, will never fail to win the regi-

ment over to his interest, and secure to him its sincerest confidence.

A knowledge of the character and constitutions of soldiers, are important acquisitions to the regimental surgeon; since it will not only lead to a more rational mode of treating and accounting for the diseases which come under his care, but in doubtful cases, will enable him also to make a tolerable discrimination between those who are really sick, and others who are only screening themselves from duty. To gain this information, it will be necessary carefully to note down the men's names, their cases, appearance, and such other circumstances as occur to him on their coming into the hospital; their conduct during the time they are under his care; and to inquire from the commissioned and non-commissioned officers of the companies to which they belong, what character they have borne in the regiment. Since it is probable, in a tropical climate, that most of the men of the regiment, in the course of the year, will fall under his care; he, by these means, will soon acquire a sufficient habit of discrimination,

nation, so as to render this part of his duty both familiar and useful.

A local knowledge of the diseases, and their causes attached to situation, is in every country an important part of the regimental surgeon's qualifications ; but in the West Indies, and more particularly in Jamaica, such information cannot be dispensed with ; since every part, in which he may be stationed, will furnish him with some variety in the form and degree of disease, that may require a deviation from any particular mode of treatment, or in that of prevention, in which he may be in the habit of adopting. In the two principal towns of Jamaica, the predisposing causes, particularly intemperance and exposure to the sun, prevail ; and the continued and remittent fever, with symptoms of great malignancy, often are to be observed both among the inhabitants and troops. In the other parts of the plains and sea-coast, they assume rather a milder type ; and in many of them, where much moisture abounds, bowel complaints are more frequent ; while

in the interior and mountains, the principal endemics are troublesome ulcers; fevers being usually rare, and always assuming the mildest type.

On this subject, the surgeon will derive but little information from books; he therefore must trust to his own observations, and to what he can collect from the verbal communications of those who have had more experience than himself. In the course of his residence in Jamaica, he probably will have an opportunity of visiting most of the posts which admit of this variety; and he will find it his interest to avail himself of such opportunities, to keep a journal of the weather, temperature of the air, diseases, and other circumstances peculiar to each post; to inquire of those who reside on the spot, what diseases more generally prevail, and what are the local circumstances to which their frequency may be attributed. These, when compared, or added to his own observations, will enable him to acquire that knowledge which he may be desirous to

to obtain, by which he will be qualified to recommend to his commanding officer, such means of prevention, as may be suitable to the situation of the corps, and to treat the diseases with that confidence, and upon those rational principles, which only can be derived from such useful information.

If any part of the military practitioner's duty requires simplicity, arrangement, and decision in the application of remedies, it is in the treatment of the diseases of tropical climates; which, though they are not marked by a variety of genus, yet the symptoms are so ambiguous and contradictory in different subjects, are marked with so many distressing circumstances, and often are so rapidly and unexpectedly fatal, that they too frequently baffle the exertions of the most judicious, and the oldest experienced physician.

In fevers, the stomach so frequently is irritable, as not to admit of the administering with safety any other remedies but such as are essentially adapted to the symptoms;

toms; and delirium, great debility, and other alarming circumstances occur, that if not immediately attended to, rapidly prove fatal. These require much circumspection, attention, and decision in the part of the surgeon to avert, and justify some deviation from the common practice, by the application of the most powerful remedies, to prevent immediate mischief. The patient's life often has depended even on the selection and management of proper diet. There is in fact, no circumstance apparently, however trifling, but what may prove of some importance in the treatment of tropical diseases; and that practitioner proves generally the most successful, who devotes the most attention to his patient; by carefully watching each symptom as it arises, and guarding against the consequences by a well-timed remedy. His constant attention also excites the same from the patient's attendants, and his frequent presence more certainly insures the observance of his advice, or checks the imprudencies which his absence might have admitted.

A judi-

A judicious and well-arranged hospital, is one of the best testimonies of a surgeon's vigilance; and attention to his duty, without it, let his abilities be ever so brilliant, or his experience the most extensive, he will not prove a successful practitioner; nor will he have it in his power to keep the sick list in the reduced state, which, by the necessary attention to this matter, might be accomplished.

If the surgeon does not interest himself in the concerns and welfare of his hospital, he may be certain, that those subordinate to him will not be more vigilant; nor can he expect that the patients will in themselves observe the directions he may have recommended for their recovery. This neglect originating in the head, and extending to the inferior officers of the hospital department, therefore will be productive of irregularities among the sick, peculation in those who have the distribution of diet, and the omission of such means as may be necessary to promote the recovery of the sick.

The

The more important points I recommend to his attention, are to visit the hospital frequently; not only at such stated times as may be adapted to the situation of the sick, or urgency of their complaints, but also at periods of the day, when his attendance may not be expected, either by the inferior officers, or by the patients of the hospital. He then often will have it in his power to detect irregularities, to discover neglects, and to convince the sick and attendants, that he is determined to see his orders or instructions, in every particular obeyed. This will lead the subordinate officers to do their duty, while it will introduce a system of regularity and good order among the patients. The surgeon should take care that the serjeant or ward-master also be qualified to do justice to the situation; that he is an honest, sober, vigilant, and intelligent person; that he is familiar with the mode of keeping hospital accounts, and punctually attends to that part of his duty; that he purchases the best and cheapest provisions for the sick, and carefully

carefully distributes the diet, agreeable to what is expressed in the diet table; that he rigidly follows the instructions of the surgeon in every thing which regards the medical treatment of the patient; and sees that the nurse, the corporal, and the orderly men, in no instance neglect the sick, or any other part of their duty; that he keeps the ward clean, and the patients under proper subordination; and that, in fact, he preserves the same good order and attention to the various duties of the hospital, in the absence, as he would do in the presence, of the surgeon. If the surgeon possesses a ward-master with these qualifications, a circumstance which will depend, in a great measure, on his own exertions and vigilance, he will have little trouble in the superintendence of the inferior departments of the hospital; and without a person of that description, his interference in their neglect will avail but little, in the establishment of good order, and the necessary hospital arrangements.

Having

Having received the commander in chief's * order to draw out a set of regulations †, for the future arrangement of the hospitals in Jamaica, I laid the following before his lordship: which he was pleased to sanction, by putting them in general orders. I introduce them for the purpose of conveying to the reader, in more concise words, the mode in which the hospitals are now regulated.

* The EARL of BALCARRAS, from whom, on all occasions, I received the warmest and most decided support, in any measures which I proposed for the welfare and comfort of the sick.

† These regulations were transmitted to the Army Medical Board, early in the year 1797.

GENERAL

GENERAL ORDERS.

Head-quarters, Spanish Town, Jan. 30, 1797.

Regulations to be observed in the regimental hospitals of the several corps in Jamaica.

IT has been found by experience, that the sick recover faster, and are under better regulations, in regimental, than in general hospitals. Besides the ill consequences of crowding a number of men of various diseases, and from different regiments, into one room, there are other circumstances of greater moment, that evidently evince why regimental hospitals, where the service will admit, are to be preferred to general ones. In the former, little experience enables the surgeons to acquire a knowledge of the constitutions, dispositions, and prevailing diseases of their patients; an emulation is excited to have their hospitals better regulated, and the sick list more reduced, than those of other regiments; while the interest the commanding officer takes

takes in the welfare of his men, and sick in particular, which from a personal knowledge often extends to the inferior officers and attendants in the hospital, all contribute to place the sick of a regiment on as respectable a footing as their situations will admit, and are advantages that cannot be obtained in a general hospital.

It was on this principle, that regimental hospitals were established in Jamaica, and they are subject to the following regulations.

The medical staff consists of a staff surgeon, an hospital store-keeper, and a certain proportion of hospital, and island assistant surgeons: these, with the regimental surgeons and their assistants, form the medical officers of the forces in Jamaica.

All the regimental hospitals are under the immediate direction of their respective surgeons, though subject to the general direction of the surgeon to the forces; who inspects them as often as he thinks necessary, sees that every part of the hospital regula-

tions have been observed, ascertains the wants, and attends to the just complaints of the men, assists with his advice the attending surgeons, and proposes to the commander in chief, such further regulations as he thinks may conduce to the good of the sick.

The surgeon to the forces having under his direction the hospital and island assistant surgeons, who are intended by their assistance to lessen the duty of the regimental surgeons, he uses his discretion in attaching them to the different regiments; adding or diminishing to the staff of each, in proportion to the number of sick, or to the urgency of the service, and informs the commanding-officer of all such changes.

During the time the hospital and island assistant surgeons are attached to a regiment, they are subject to the orders of its commanding-officer, and receive from the regiment whatever island or extra allowances (bat and forage excepted) to which they may be entitled.

The island assistant surgeons, who are appointed by the commander in chief, are intended as auxiliaries to the staff, where there is a deficiency of medical attendants, and where the sick are very numerous; or, when a regiment is detached, to take charge or to assist in taking charge of the sick of those detachments.

Regulations to be observed in the regimental hospitals in Jamaica.

1st, THE hospital to be regularly visited by the attending surgeon three times a-day, and oftener if necessary: at the first visit the surgeon is to enter into a day-book a prescription of such medicines as he intends to administer to his patients; he is to correctly fill up the table for the distribution of diet of such men, and sign it; and with the table of diet, he is to see it hung in the most conspicuous part of the ward for the inspection of the whole of the sick, who are to be granted nothing by the non-commissioned

missioned officer but what is expressed in the diet-table.

2d, In the treatment of the sick, whether it regards the ordering of medicine, diet, or wine, or the discharging of men from the hospital, the attending surgeon's power to be absolute, and no officer whatever (the surgeon of the forces excepted) is to interfere with this part of the surgeon's duty.

3d, Officers commanding regiments will order the attending surgeon to give them in a weekly return or statement of hospital expenditures, and corresponding diet-tables, both signed by the surgeon; and at the end of every fourth week, the commanding-officers, and the surgeon to the forces, to give in a report to the commander in chief of the state of the hospitals, whether regular or otherwise, and such general remarks as they may think will conduce to the good of the sick.

4th, The surgeon to give in to the commanding officer a weekly return of the sick, stating the men's names, companies, dis-

eases, state of recovery, and such other remarks as the occurrences of the week may have furnished.

5th, A non-commissioned officer for the day to collect the sick reports from the different companies, and with the sick in the barracks to attend the hospital every morning at the time it is visited by the surgeon; he is there to give in the reports, and to take back to the barracks such patients as the surgeon may direct not to be received into the hospital; he is likewise to carry to the hospital any man that may fall sick during the day, and immediately afterwards report him to the surgeon, who will direct whether he is to be detained in the hospital or returned to the barracks; and the non-commissioned officer for the day is to consider himself under the orders of the surgeon in every thing that concerns the sick.

6th, No soldier labouring under the most trifling symptom of fever or dysentery to remain in the barrack on any account whatever; and any man detected in conceal-
ing

ing his complaints, and not reporting himself to the hospital non-commissioned officer for the day, is to be immediately confined for disobedience of orders, and reported to the commanding officer.

7th, Every man on his being received into the hospital, is to give up to the charge of a non-commissioned officer of his company all his accoutrements and clothing except his flannel jacket, trowsers, and shirts, the former are not to be returned to him until he is discharged from the hospital; he is likewise to be immediately washed all over with soap and warm water, put to bed, and placed on low diet until otherwise directed by the surgeon.

8th, Every hospital to have a sentry at its door, who is to receive orders to permit no person to enter but those concerned with the hospital, the staff, and officers of the regiment; he is to be particularly careful in preventing liquor or any thing improper from being carried into the hospital; nor is he to permit any patient to go out (to the necessary excepted) without a ticket of leave from the attending surgeon.

9th, Every hospital to have an honest, diligent, and active serjeant, such as may be approved of by the surgeon of the forces, who is to have the immediate direction of the sick, and in the absence of the surgeon to be punctually obeyed in all his orders by every other person in the ward; and as the duty entrusted to his charge is of the utmost importance to the sick, and without his diligence and abilities the best medical efforts may prove abortive, it is expected the surgeon of the forces will be extremely cautious how he approves of a person recommended to this duty, and that he will previously inquire into his character and strictly examine his abilities for this undertaking.

10th, A corporal is also to be appointed, whose particular duty is to inspect the orderly men and pioneers, and to be accountable for their good conduct; he is therefore to go round at the periods fixed by the surgeon for the administering of medicines and nourishment, and to see that the nurse, orderly men, and pioneers, punctually give to the patients what has been directed by
the

the surgeon; he is likewise to see that the ward is kept clean and the bed-pans emptied out, by the orderly men and pioneers immediately after they have been used.

11th, The corporal is to attend to seeing the ward well scraped and swept by the orderly men and pioneers every morning early, and that it is afterwards well fumigated with gunpowder wetted in vinegar, and thrown over heated iron placed in different parts of the ward; he is likewise to prevent the floor from being dirtied by the patients spitting on it, &c. &c. or by any means rendering the ward in the least degree offensive.

12th, The serjeant is to see that every patient, capable of doing it or having it done, is to have his face and hands washed, and his hair combed and tied, before the surgeon visits the hospital; and those men who are able to sit up are regularly to fold up their bedding, and to sweep under their beds, every morning by six o'clock; they are likewise to separate their bedding, to air, two hours every day: he is also to prevent irregularities in the hospital, such

as gaming, swearing, or refusing his or the nurse's directions.

As quietness and rest are absolutely required in an hospital, great care is to be taken that as little noise as possible be allowed at any time, but particularly at night; every man must therefore be in his bed by seven o'clock, and no conversation whatever be permitted after that time.

13th, The serjeant is to direct the wards to be regularly well washed every other day, (unless otherwise directed by the surgeon,) and previous to the beds being replaced, to see the rooms well fumigated in the manner directed in article No. 11; he is likewise to prevent any kind of incumbrance to be hung on the walls, or placed in the windows of the ward, that can in the least degree intercept a circulation of air, or serve as a receptacle for infection.

14th, The head non-commissioned officer is to be particularly attentive to the frequent change of linen and bedding of such patients as have fevers, dysentery, or any diseases of an infectious tendency; and

that

that the foul linen and bedding, after having been previously washed in water, be fumigated with gunpowder as above, and well dried and aired before they are again used or put by for use; and the surgeon will use his discretion, consistent with the economy or the welfare of the men, in destroying such of the men's clothes or bedding as might contribute to a communication of infection.

A decent sober woman to be employed as a nurse, whose duty will be to prepare the slops and comforts for the sick, and to occasionally assist in administering medicines, &c. &c.

16th, Every hospital to be furnished with at least four orderly men and three pioneers, at the discretion of the attending surgeon. In cases of fever, where the sick require particular attention, an extra orderly man from the company to which the patient belongs (and if practicable his comrade) to be allowed to attend until he is pronounced out of danger. The duty of the orderly men and pioneers (one of the latter
of

of which is likewise to cook for the hospital) is to officiate as nurses, by attending the sick, administering their medicines and nourishment, and to keep the ward clean.

17th, The officer for the day is to visit the hospital at the hour fixed by the commanding-officer, and report to him any complaint or irregularity that may have occurred in the hospital, or where in any instance these regulations have not been attended to.

18th, The serjeant of the barrack or hospital guard, attended by the head non-commissioned officer of the hospital, to go every morning round the ward, to call a roll, and see that every man is in his ward; to do the same at night, and report to the attending surgeon the following morning such men as were found absent, or whether the hospital was regular and in good order.

19th, In those regiments whose hospitals have two rooms, the dysenteric and feverish patients to be kept in a separate ward

ward from the surgical patients and convalescents.

Every regiment to have a room in the barracks appropriated to the accommodation of such convalescents in the sick hospital, whose state of health will admit of their being placed on full diet. This hospital to be regularly visited by the surgeon once, twice, or oftener in the day, as circumstances may require.

A non-commissioned officer to be appointed to the particular charge of the convalescent hospital, and one orderly man and a pioneer to be also attached to it, to keep it clean, and assist in the ward: such of the patients whose strength will allow, are likewise to be employed in the same duty. The convalescents to receive their diet from the sick hospital, and in every other particular to be under the same regulations as are observed in that hospital.

20th, The surgeon of the forces is particularly directed, in his visits to the different hospitals, to see that every part of the above regulations have been strictly attended

attended to, to examine the quality of the articles issued to the sick, to find out if the men have any just cause of complaint, to see that the diet-tables are kept in the hospitals for the inspection of the men, the hospital accounts kept regular, and to report to the commander in chief such regiments as have not attended to the regulations, for which the commanding officers must be solely responsible.

The above regulations after having received the commanding officer's signature, are to be pasted on a board, and constantly hung up in the ward of each hospital. It is particularly expected that none of the hospital tables will be defaced by any person whatever, nor taken down, but by the surgeon or serjeant; the latter of whom will explain the allowance ordered to such patients who are not in a situation to read the table for the distribution of diet.

Further

Further Regulations to be observed in the hospitals.

THE serjeant of the hospital, under the direction of the surgeon, is to keep a book, wherein he is to enter the names of the men and periods when received into the hospital, their ages, diseases, when discharged, or dead. From this book (see table No. 1) the surgeon makes out the monthly return of the sick (No. 2), which is sent in by the surgeon of each regiment to the surgeon of the forces, who from these forms a general return; one copy of which he gives in to the commander in chief, and transmits another to the army medical board.

When invalids or convalescents are to be sent to Europe, the surgeon to the forces (if practicable) is to be consulted, and a return (No. 3) sent to him by the surgeon of each regiment, of such men as are considered proper subjects for an European climate, or to be discharged the service.

The

The mode adopted in Jamaica for supplying the hospitals with medicines, necessaries, and comforts, is as follows:—

The military hospital store, of which one of the assistant surgeons has the charge, is under the direction of the surgeon of the forces: from this store he supplies, at his discretion, the different regiments with bedding and hospital utensils.

In consequence of the great sickness that prevails in the West Indies, and the difficulty of procuring medicines at a moderate rate, the surgeon of each regiment is allowed by Government half-yearly a supply of particular articles (No. 4), and he furnishes his other wants of that nature out of his medicine money. The surgeon to the forces, however, where regiments are particularly sickly, or where the supplies have not been regularly sent out, takes upon himself sometimes to assist the surgeons with medicines out of the public store, taking receipts for what he issues, and sending a statement of it to the medical board, who either approve of those indulgences to the surgeons,

surgeons, or direct the apothecary-general to charge their agents with them at prime cost *.—

Extract from a resolution passed the Assembly 21st December 1796, relating to the military hospitals in Jamaica:

“AND BE IT ENACTED, That the receiver general do, out of the monies to arise by virtue of this or any act to be passed this session, pay to the order of the commander in chief the sum of six shillings and eight-pence for each man stated in the respective quarterly returns to be made of the troops quartered in this island on its establishment, as a fund to provide necessaries for the sick, in addition to their own regimental hospital funds.”

In consequence of the above, the following plan is to be adopted for subsisting

* Since the surgeon's pay has been altered, the regiments totally are supplied with medicines by Government.

the

the hospitals and supplying the sick with comforts, and is to commence on the 25th January 1797 :—

The health rations are to be drawn for the sick weekly by the quartermaster of each regiment, who will dispose of them to the best advantage, agreeable to the orders of the commanding officer, and place the amount in the hands of the paymaster.

A sum not less than one shilling and eight-pence per week (at the discretion of the commanding officers) to be deducted from each sick man's pay by the paymasters : this, with the value of the health ration, and the sum of one dollar per quarter for every man who has been effective upon the monthly returns, and which sum will be paid by the receiver general to the paymasters every quarter, agreeable to the three monthly returns, is to form the hospital fund of each regiment ; out of which all the wants of the sick (medicines excepted) are to be supplied, and

it

it is to be appropriated to no other use whatever.

The commanding officers will appoint proper persons to act as purveyors, who are to supply the hospitals with provisions and comforts agreeable to the demands of the surgeons; to whom they are to account for the expenditure, which is to be entered into a book for the inspection of the commanding officers.

Hospital regulation, No. 1, which regards the distribution of the diet for the sick, to be punctually observed. See No. 5, 6.

On the back of each diet-table (No. 5), the purveyors are to express the proportions, and charges, of the different articles expended during the day, which they are to present to the surgeons for their approbation and signature. The amount of each day's hospital expence is to be stated on the back of the weekly returns of the sick (No. 7), with the surgeon's signature, and by him given in to the commanding officers; who, after comparing it with the

daily diet-tables, will, on approving, give the purveyors an order on the paymasters for the amount.

The paymasters are to keep a regular account of monies received and paid by them on account of the hospitals, which, with the purveyor's books of account, are to be open to the inspection of the surgeon of the forces, who in his monthly report to the commander in chief, will point out those regiments in which the above order has not been duly observed, or where the sick have not been furnished with articles of the best quality.

(Signed) A. BUTTER, D.A.G.

TABLE

TABLE, No. II.

	Names.	
	Age.	
	Fevers.	
	Pulmonic Cafes.	
	Dyfentery.	
	Dropfy.	
	Rheumatifm.	
	Difeafes of the Eyes.	
	Wounds and Ulcers.	
	Ruptures.	
	Veneral Complaints	
	Disorders of the Urinary Paffage.	
	Fits.	
	Jaundice.	
	Tumours.	
	Fractures.	
	Dislocations.	
	Contufions.	
	Convalefcant.	
	When firft returned.	
	Hofpital.	Where accommodated
	Barracks or Billets.	
	Head-Quarters.	
	Cantonments.	
	Men unfit for Service from Difeafe.	
	Admitted on the Return.	Alterations fince laft Return.
	Discharged from the Return.	
	Dead.	General Obfervations.

Monthly Return of the Sick of

Head-Quarters,

20th of

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TABLE, No. IV.

Invoice of Medicines, being the Half-Yearly Supply for a Regiment in Jamaica.

	LIB.	UNC.		LIB.	UNC.
Antimon. Tartarifat.	-	4	Flor. Sulphur.	2	8
Calomel. ppt. - -	-	4	Kali ppt. - -	-	12
Cantharid. Pulv. -	1		Natron Vitriolat.	65	
Confect. Aromatic.	-	8	Ol. Menth. Pip.	-	4
Cort. Peruv. Opt. Pulv.	65		Opium Purificat.	-	8
Creta ppt. - - -	5		Pulv. Rad. Ipecac.	-	8
Elix. Vitriol. Acid.	-	8	- - Jallap.	-	8
Ext. Colocynth. Comp.	-	4	- - Rhabarb.	1	
Flor. Chamœm. -	10		- - Scill.	-	1
- - - - - Pulv.	1		Tinctur. Opii -	-	8

N. B. By the new Regulations, the above Supply no longer is issued.

TABLE, No. V.

Daily Distribution of Diet for the Sick of the
Regiment of

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EXTRAORDINARIES.														Extraordinaries varied during the day.
Diet.			Wine.		Rum	Brandy.	Cyder.	Porter.	Bottles Spruce.	Mutton.	Fish.	Chicken Broth.	Tea.	
Full.	Middle.	Low.	Wh.	Port.										Gills.
			Pints.	Half-pints.										
				Pints.										
				Half-pints.										

(Signed)

Surgeon.

The following Table of the Expenditure to be put on the
back of the above.

		£.	s.	d.
Bread,	lb.			
Rice,	do.			
Sugar,	do.			
Beef,	do.			
Mutton,	do.			
Sago,	do.			
Coffee,	gills,			
Wine,	pints,			
Porter,	bottles			
Cyder,	do.			
Rum,	pints,			
Brandy,	do.			
Vinegar,	quarts,			
Milk,	do.			
Fish,	lb.			
Fowl,				
Candles,	lb.			
Oil,	pints,			
Vegetables,				
Total,				

Approved,

Surgeon.

TABLE, No. VI.

Table of Diet.

DIET.	BREAKFAST.	DINNER.	SUPPER.
FULL.	Half a pound bread, with a pint of corn or rice gruel, or coffee with sugar.	Half a pound of beef, and half a pound of bread; the beef to be made into soup, with cheap vegetables.	The same as for breakfast, without the bread.
MIDDLE OR HALF.	Half a pint of rice or corn gruel, or coffee with sugar.	A pint of beef soup, and four ounces of bread.	The same as for breakfast.
Low.	Mint or sage tea, or any thin water gruel with sugar.	Half a pint of panado, sago, or rice gruel, with or without wine, as directed by the surgeon, who will vary the above proportion of diet as he sees necessary.	The same as for breakfast.

* * * Mutton, Fish, Chicken Broth, Wine, Porter, Cyder, Brandy, Tea, &c. &c. will be allowed to such particular patients, whose cases the attending Surgeon may think will require such indulgencies, and this will be expressed in the Table for the Regulation and Distribution of Diet.

TABLE, No. VIII.

Weekly Statement of Hospital Expences.

Day of the Month.	Day of the Week.	£.	s.	d.
	Monday, - - - -			
	Tuesday, - - - -			
	Wednesday, - - - -			
	Thursday, - - - -			
	Friday, - - - -			
	Saturday, - - - -			
	Sunday, - - - -			
	Total, - - - -			

Surgeon.

FORM of the HOSPITAL BOOK of
ACCOUNTS.

DAILY EXPENDITURE.

Dates.	Sundries.	£.	s.	d.
	SATURDAY.			
	Bread - - - - -	lb.		
	Rice - - - - -			
	Sugar - - - - -			
	Beef - - - - -			
	Mutton - - - - -			
	Sago - - - - -			
	Coffee - - - - -			
	Wine - - - - -			
	Porter - - - - -			
	Cyder - - - - -			
	Rum - - - - -			
	Brandy - - - - -			
	Vinegar - - - - -			
	Milk - - - - -			
	Fish - - - - -			
	Fowl - - - - -			
	Candles or Oil - - -			
	Vegetables - - - - -			
	Men in Hospital	£.		

DAILY EXPENDITURE.

Dates.	Sundries.	£.	s.	d.
	SUNDAY.			
	Bread - - - - -	lb.		
	Rice - - - - -			
	Sugar - - - - -			
	Beef - - - - -			
	Mutton - - - - -			
	Sago - - - - -			
	Coffee - - - - -	gills		
	Wine - - - - -			
	Porter - - - - -			
	Cyder - - - - -			
	Rum - - - - -			
	Brandy - - - - -			
	Vinegar - - - - -			
	Milk - - - - -			
	Fish - - - - -			
	Fowl - - - - -			
	Candles or Oil - - - - -			
	Vegetables - - - - -			
	Men in Hospital.	£.		

DAILY EXPENDITURE.

Dates.	Sundries.	£.	s.	d.
MONDAY.				
	Bread - - - - -	1b.		
	Rice - - - - -			
	Sugar - - - - -			
	Beef - - - - -			
	Mutton - - - - -			
	Sago - - - - -			
	Coffee - - - - -			
	Wine - - - - -			
	Porter - - - - -			
	Cyder - - - - -			
	Rum - - - - -			
	Brandy - - - - -			
	Vinegar - - - - -			
	Milk - - - - -			
	Fish - - - - -			
	Fowl - - - - -			
	Candles or Oil - - - - -			
	Vegetables - - - - -			
Men in Hospital 14 £.				

DAILY EXPENDITURE.

[illegible]

DAILY EXPENDITURE.

Dates.	Sundries.	£.	s.	d.
THURSDAY.				
Bread	-	lb.		
Rice	-			
Sugar	-			
Beef	-			
Mutton	-			
Sago	-			
Coffee	-	gills		
Wine	-			
Porter	-			
Cyder	-			
Rum	-			
Brandy	-			
Vinegar	-			
Milk	-			
Fish	-			
Fowl	-			
Candles or Oil	-			
Vegetables	-			
Men in Hospital				
		£.		

DAILY EXPENDITURE.

Dates.	Sundries.	£.	s.	d.
	FRIDAY.			
	Bread - - - - -	lb.		
	Rice - - - - -			
	Sugar - - - - -			
	Beef - - - - -			
	Mutton - - - - -			
	Sago - - - - -			
	Coffee - - - - -	gills		
	Wine - - - - -			
	Porter - - - - -			
	Cyder - - - - -			
	Rum - - - - -			
	Brandy - - - - -			
	Vinegar - - - - -			
	Milk - - - - -			
	Fish - - - - -			
	Fowl - - - - -			
	Candles or Oil - - - - -			
	Vegetables - - - - -			
	Men in Hospital	£.		

Weekly Account of Expenditure and Receipts on account of the Hospital of

Regiment 338

from to

Number of Men in the Hospital	Days	Daily Expenditure of the Hospital	Hospital	Dr. Amount	Contra	Cr. Amount
	Saturday	£. s. d.	To weekly Expenditure	£. s. d.		£. s. d.
	Sunday					
	Monday					
	Tuesday					
	Wednesday					
	Thursday					
	Friday					

By Amount of the Island Allowance for effective Men at 6s. 8d. per Man per Quarter
 By Allowance for the value of the Health Rations of Men
 By sick Men's Stoppages at 1s. 8d. per Week each

Account of the Purchase and Expenditure of Store Articles.

Date	Hobist	Date	Gallons Wine.	Gallons Porter.	Pounds Sugar	Pounds Rice.	Pounds Flour.	Quarts Coffee.
In Store								
Purchased								
Total								
Deduct, expended this Week								
Remains in Store								

Account of the Purchase and Expenditure of Store Articles.

GENERAL ACCOUNT OF RECEIPTS AND EXPENDITURE FOR THE HOSPITAL.

[illegible]

By the preceding regulations, it appears that each regiment in Jamaica is furnished with an hospital by the island; that the sick are placed upon the regimental establishment, though generally superintended by the chief hospital officer; that the medicines, bedding, and utensils, are provided by government; that the diet, comforts, and other contingencies of the sick, are partly supplied by the island, and partly by stoppages from the men's pay; that the surgeon has no other concern in the diet and comforts, but to see that they are distributed agreeable to his orders, and to be a check on the purveyor's accounts; and that the whole of the arrangement is still further under the control of the commanding officer, and surgeon to the forces.

The regimental hospitals in Jamaica, (the post of Stoney Hill excepted) are not in general placed in the most eligible situation, nor constructed in a manner suitable to the circumstances of the sick;

nor are they sufficiently roomy to accommodate the number of patients, which may occur after the arrival of a regiment from Europe. The site of the hospital, should be as remote from moisture, as the situation of the barracks will admit; while its aspect should be such as to allow every part of the wards to be completely ventilated by the sea-breeze during the day, without exposing the sick too much to the influence of the land-wind at night, or obliging the doors and too many of the windows to be shut, to exclude its admission. The rooms cannot be too lofty, or wide; the doors large, and folding; and the space between the windows, wide enough to prevent the patients from receiving either of the breezes while in their beds. The hospital neither should be in the channel of the breeze towards, nor be likely to receive it from the barracks; while it should be sufficiently contiguous, to enable the sick to be conveyed from the barracks without much inconvenience. The building should be placed upon arches, to prevent its being damp,

and to admit of a free circulation of air underneath, while its walls always should be bricked, wooden frames being universally found to render the apartments hot in the day, and easily to allow the land-wind to penetrate during the night. The hospital should be divided into three apartments, one for the reception of patients in acute disease, a second for ulcers and surgical cases, and a third for those in the first stage of convalescence. There also should be a small room for patients on their first admission, where they should be washed, and put in the hospital dress, before they are placed in the sick ward. The whole should be able to accommodate the proportion of fifty sick to every three hundred effective men, and though for some time after the arrival of a regiment in the West Indies, it is probable the number of sick will exceed what is now mentioned; yet as the regulations point out the necessity of a convalescent room being furnished by the regiment, for men who are not sufficiently recovered to return to their duty, it is probable such an hospital, on most occasions, would

would be sufficiently capacious. A proper cook room, apartments for stores and provisions, and a small dispensary, are among the necessary and usual appendages of an hospital.

As the island furnishes each hospital with bedsteads, those of the portable kind are not so preferable as stretchers; since the latter are more roomy, and are washed and put out of the way with equal convenience: the canvas of these should be rendered moveable, by being fixed to the frame with buttons in the place of nails. In a tropical climate, there always should be sufficient room between each stretcher, to admit two persons, although the sick may not require their attendance.

The proportion of medicines, bedding, and hospital utensils, to be allowed to each corps on home or foreign service, having been fixed, it may appear presumptuous in me to propose any new arrangement on that head. However I cannot help observing, that the proportion of bedding and hospital utensils for regiments on foreign service,

service, is not likely by any means to be adequate to the wants of the sick, so as to render them comfortable. The allowance of bedding and hospital utensils, is at the rate of four sets to every hundred men at home, and six sets on foreign service. If a regiment arrives in the West Indies at an unhealthy season of the year, or is stationed in either of the towns, or on the sea-coast, it will seldom have less than one fourth of the whole on the sick list upon an average, for the first twelvemonth, or one seventh, at any subsequent period. Upon this calculation, a regiment of three hundred men would require, during its most sickly period, sixty or seventy sets, and during the most healthy, at least forty sets of bedding, and hospital utensils in proportion. This circumstance, when added to the loss of men sustained by the service, is a corroborating proof of the expense derived to government, from stationing the troops in such unhealthy quarters.

Great benefit would be derived from furnishing each hospital with two tin bathing-

bathing-machines, and five or six tin foot-baths, upon the new construction; the warm bath and pediluvia being a very essential part of the treatment of fever. If the sick were supplied with an hospital dress also, similar to that lately used in the general hospitals in St. Domingo, and consisting of a flannel gown, a pair of flannel trowsers, a coarse shirt, and a woollen cap, it would contribute to their comfort, and to the total prevention of the hospital being encumbered with unnecessary cloaths of the sick.

The sick of the regiments in Jamaica, it has been observed, are dieted and supplied with comforts, at the expence of the island, combined with certain stoppages from the men's pay. When I arrived in Jamaica, the following plan was adopted. The salt rations, and rum of the sick, were stopped by the quarter-master, and only the bread and the two days fresh provisions (which they were allowed when in health) issued to the hospital. The former (the salt rations and rum) were disposed of to the best advantage, and the money placed in the hands

hands of the pay-master; which, with a quarter of a dollar deducted weekly from each sick man's pay, were to form a fund, out of which the sick were to be supplied with fresh provisions, vegetables, and such other comforts as might be required; except the article of wine, for the supply of which, the island granted to the garrison-surgeon, two hundred pounds a-year currency for each regiment. The annual allowance of twenty pounds by government, also was employed to defray the expence of the nurse, and a few other contingencies. This plan, when the various articles employed for the sick were to be purchased upon reasonable terms, was found to answer all the purposes for which it was intended: but, in consequence of the war, wine, provisions, and every article of life, were rendered dearer, and neither the regiment could supply the comforts, nor the garrison-surgeon the wine, in proportions and qualities suitable to the wants and circumstances of the sick.

The

The situation of the hospitals, therefore, was laid before the legislature of Jamaica, and the necessity of a more ample allowance for the sick, was strongly represented and urged, with a zeal proportioned to its importance. In consequence of this application, the annual allowance granted to the garrison-surgeon for wine, was annulled, and ten shillings and sixpence weekly for every sick soldier, was generously voted by the island, for supplying, in conjunction with the rations, all the wants of the sick, excepting the article of medicine and hospital stores. This fund was placed in the hands of the regimental surgeon, who was to lay it out to the best advantage, to keep a regular account of expenditure, for which his diet tables were to be the vouchers; and to enable him to draw the allowance, he was to lay these accounts and diet tables before the commissioners of public accounts, who, upon being satisfied, were to give an order for payment. From the inconvenience of disposing of the rations, they

after-

afterwards were totally withdrawn, and the weekly sum of eighteen shillings and fourpence for every sick man, was allowed for the fund of each regiment.

Upon this plan, the hospital-funds in the hands of prudent and judicious surgeons, were capable of rendering the sick as comfortable as their situations admitted; and the sum was not, in my opinion, more than requisite for that purpose. But I acknowledge, when the plan was at first suggested, I was not aware of the inconvenience and objections to which it was subject, from appointing the surgeon purveyor to his own sick. It did not occur to me at the time, that a professional man was not initiated into the habits of keeping accounts, nor under such circumstances, could he be the proper check upon the expenditures of the hospitals. It did not strike me, that in consequence of the war, regiments might arrive, that were undisciplined, and consequently, neither the commanding officers nor surgeons sufficiently

ciently qualified to regulate a regimental hospital; nor did I foresee, or could I suppose, that this plan would have given rise to illiberal reflections.

The hospital accounts of some of the regiments, it must be acknowledged, were not so satisfactory as could have been wished, though no pains were spared to put the surgeons in the way of keeping them more regular. But when the general situation and the sickly state of those regiments are considered, and that the habit of keeping accounts is not necessarily attached to the medical profession, I think great allowances ought to be made for the ill performance of this part of the surgeon's duty, and that we should not too hastily attach any other cause for the misapplication of the funds.

In consequence of the great expence incurred by the Maroon war, and from an idea, that this allowance was more than requisite for the supplies of the sick, the assembly of Jamaica, in December 1796, annulled

annulled their former resolution, returned to the sick their salt rations, and voted to the hospitals the annual allowance of four dollars, for every effective man in each regiment. It was now considered most expedient to appoint a purveyor for each regiment, that the fund should be placed in the hands of the pay-master; the surgeon by comparing his accounts with the diet tables, to be the check upon the purveyor, and the commanding officer and surgeon to the forces, by frequent examinations of accounts and vouchers, to superintend the duty of each of the departments.

This plan consequently has given rise to a more regular and official mode of keeping hospital accounts; the surgeon acts in his proper capacity of prescribing for the sick, and checking the expenditure of the purveyor; and the whole is conducted in so connected and regular a manner, that it renders imposition, in any of the branches, improbable, and therefore not to be suspected.

pected. But it also must be mentioned, that the hospital funds of all the regiments have since been in arrears, and that a considerable deduction from the men's pay has been added to the funds, to enable them to supply the wants of the sick, in a manner adequate to their situation. The plan now adopted in the regimental hospitals in Jamaica is as follows:

The whole of the fund, arising from the island allowance, the sale of the health rations, and the stoppages from the men's pay, is placed in the hands of the pay-master; who keeps one general account of monies received, what has been issued to the purveyor, and of the balance. This account is inspected by the commanding officer and surgeon to the forces.

A person, usually the ward-master, is appointed, by the commanding officer, purveyor; who has the charge of all the hospital stores, purchases the smaller articles for the sick, and distributes the diet and comforts agreeable to the surgeon's instructions.

He

He therefore keeps a book of receipts, and expenditure of the stores, put under his charge, as also of the daily expenditures of the hospital. On the surgeon's first morning visit, the purveyor presents him with the diet table for that day, wherein the names of all the men in hospital are inserted. This the surgeon fills up with such diet, articles, and proportions, under their respective columns, as he may consider suitable to the patient's case, and signs the table. It is then hung up in the ward, for the inspection of the sick. On the following day, the various articles consumed, and their charges, are expressed on the back of this table, which is presented to the surgeon for his examination, and if it corresponds with the distribution of the diet, he signs his approbation. The number of men in hospital, with the articles consumed, and their charges, are then entered by the purveyor into the hospital and daily book of expenditure. On the back of the weekly return of the sick, the surgeon expresses the amount of each day's hospital expence, and

with the daily diet tables, he presents the whole to the commanding officer, who examines them, and if satisfied, gives the purveyor an order on the pay-master for payment. Thus the purveyor is checked by the surgeon, both those officers and the pay-master, by the commanding officer, and the whole is still further subject to the inspection and inquiry of the surgeon to the forces.

The limited allowance for hospitals, leads many of the regiments to adopt a system of arrangement, which deserves to be imitated by all those corps, whose hospital funds demand the strictest economy to enable the surgeon to do justice to the sick. It was their plan to purchase from a merchant in Kingston, in large quantities, and consequently at a much cheaper rate than by retail, wine and such other articles as were not immediately perishable, and place them in the charge of the purveyor, but subject to the inspection of the surgeon. Fresh meat, poultry, vegetables, milk, and the smaller articles, were purchased by the pur-

veyor, who kept a daily account of the expenditure of the whole, conformable to the plan laid down in the general order; so that the commanding officer and surgeon, by comparing the diet tables with the purveyor's general account, could at any time ascertain how far he had been correct, what proportion of stores had been expended, and what still remained in his possession. Another saving to the hospital fund, was acquired in the article of bread. A pound of bread to each man per day formed a part of the island ration, and this on most occasions, was issued to the men in hospital. The whole of this, it was impossible for the patients to consume, since many, for the first two or three days, could use none, and others only a small proportion; while its quality was not suited to the situation of the sick. The flour therefore, was drawn in lieu of the bread, and an agreement made with a baker in the town, to which he very readily assented, to furnish a pound of the finest bread, for every pound of flour, and no more procured for the hospital, than
what

what was absolutely expressed in the diet table. When a certain quantity had accumulated, and the market price high, the remaining portion of flour was sold, and the value added to the hospital fund. The other part of the rations not used in the hospital, was also reserved in store, until they could be sold to the most advantage, for the benefit of the fund.

The surgeons had also in view, the saving to be made upon those cases of fever, which rendered it proper to place the patient on low diet, and which often proved necessary to be continued some days after they came into the hospital. No fresh meat therefore for such patients was purchased, and this enabled the surgeon to order others in a state of convalescence, those more expensive articles, which were likely to contribute to their recovery. Chicken-broth, fish, wine, brandy, spruce beer, porter, cyder, milk, and eggs, had each their particular and important uses, in the successful treatment of tropical diseases; and where the patient's stomach was irritable, or

nauseated most other articles, these, when judiciously administered, often very powerfully aided the patient's recovery. It was also an economical plan, while it contributed to the comfort of the sick, for all the patients that were not constantly confined to their beds, to dine at one table, either in the convalescent ward, or in one of the piazza's, sheltered by a curtain from the sun. The smell of dressed meat is very apt to offend the stomachs of those patients, who are not in a state to make use of it, while the sight of the confined sick and the effluvia of the ward, by no means improve the appetites, or encourage others who are in a more advanced state of recovery, to enjoy their meals. This also enables the purveyor or ward-master, if he be a prudent man, to prevent unnecessary waste, to lay by such bread and meat as have not been used, and to convert these articles into panada and soup for the other patients on the following day; while from having all the men under his eye at time of meal, he can check
any

any irregularity or improper distribution of wine, of which the patients in his absence might be guilty.

The duty of the serjeant or ward-master has already been noticed; I shall therefore make a few remarks on that of the other persons employed or concerned in the care of the sick. The utility of a second non-commissioned officer to the hospital of a corps where much sickness prevails, is too evident to admit of an objection. The ward-master having the purchasing and distribution of the diet, and the keeping of the hospital accounts, much of his time necessarily must be occupied in these employments, and must prevent him from devoting that constant attention to the ward, which is absolutely requisite. The diseases of warm climates are in general rapid, and to prevent their fatal effects, demand the most rigid observance of the surgeon's orders, both in the administration of medicines and diet. This duty from being entrusted to the nurses, orderly men, or pioneers, in whom frequently but little

confidence can be placed, would often be very ill performed, if such people were not under the eye and control of some person, who is made responsible for their good conduct and attention, and to whom the blame will be attached, should the patient in any instance be neglected. The corporal's duty therefore should be confined totally to the ward.

In the West Indies the climate does not admit of the sick receiving that benefit from female nursing, which in Europe is always to be preferred; since white women can undergo but little fatigue without falling sick, and when employed as nurses, are too apt to drop asleep at a time, when probably the patient may have the most occasion for their assistance; and no dependence can be placed on the negro women. Orderly men conjunctly with black pioneers, are therefore employed to officiate in that capacity, the number of which always should be proportioned to the state of the sick, and the prevailing diseases. The nurse's duty therefore is confined principally

pally to washing the small linen of the sick, preparing their slops and comforts, and giving occasional assistance in the ward. The laborious part of cooking is performed by one of the pioneers. In dangerous cases of fever, where the patient's recovery in a great measure depends on the assiduity of the attendants, and in having such persons about him in whom he places the most confidence, it is highly advantageous, and it becomes an act of humanity, for the surgeon to obtain the commanding officer's permission, for the patient's comrade to do this office, and if necessary, for him to be relieved by such men from the sick man's company, as he may prefer. It was a custom I universally observed under such circumstances, in the 20th Light Dragoons, and 62d regiment; and I always found the patient's mind rendered easier by it, while my instructions were most rigidly observed.

It would contribute very considerably to the recovery of the sick, and would often prevent relapses, if each regiment was furnished

ished with a house under proper regulations, in some healthy situation, at a small distance from its quarters, to which it could send its convalescents, for a change of air. There are none of the posts in Jamaica but what furnish situations in their vicinity, that would answer this purpose; and I am convinced, if they were even raised at the expence of Government, the charge would soon be defrayed, by the number of lives such a measure would preserve. In the West Indies, a change from one house to another in the same town, very often has given a dangerous fever a favorable turn; how much more may be expected from rapidly moving patients from the seat of disease, to a cooler and more healthy atmosphere, where not only the exercise, but the change of scene, by amusing the mind, would assist their recovery?

Exercise in the open air is so essential to the restoration of health in the West Indies, that the inhabitants are sent out either in a carriage or on horseback, as soon as their strength will in the least degree admit,

mit, and they universally feel its good effects. The 20th Light Dragoons avail themselves of the advantage of their horses, to send out their convalescents daily in the same way; and when I was surgeon to the 62d regiment, I obtained the commanding officer's permission to direct the convalescents of that corps, under the charge of a non-commissioned officer, to walk out for the same purpose. This exercise, though not equal to riding on horseback, evidently had its use in restoring strength and health, to those who adopt it; and it certainly should form a part of the regulations of every regiment stationed in the West Indies.

THE END.

Exercise in the open air is so essential to the restoration of health in the West Indies, that the inhabitants are sent out either in a carriage or on horseback, as soon as their strength will in the least degree admit.

ERRATA.

VOL. I.

- Page 2. line the last, after as insert in
 111. — 6. for port read post
 112. — 13. for are not at all times read at all times are
 137. — 18. for renders read render
 170. — 25. for a full period place a comma
 175. — the last but one, for regiments were read regiment was
 179. — 13. for were read was
 180. — 6. for they read it, and for their read its
 208. — 7. dele fever
 209. — 9. for were read was
 221. — last but two, for were read was
 224. In the Tables, for hospitable read hospital
 240. for Chap. IV. read Chap. VIII.
 258. — 7. after exertion insert it

VOL. II.

- For Chap. V. read Chap. IX: &c. &c.
 Page 17. line 6. for consequence read consequences
 61. — 1. for these read the
 91. — 5. for in read on
 101. — 2. for secretion read secretions
 107. — 18. for increased read increales
 149. — 3. for forbid read forbids
 150. — 12. after troops insert in
 188. — 2. after to insert the
 202. — 13. for form read fever
 202. — 7. for is read are
 295. — 9. for part read post
 298. — 5. for in read on

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